

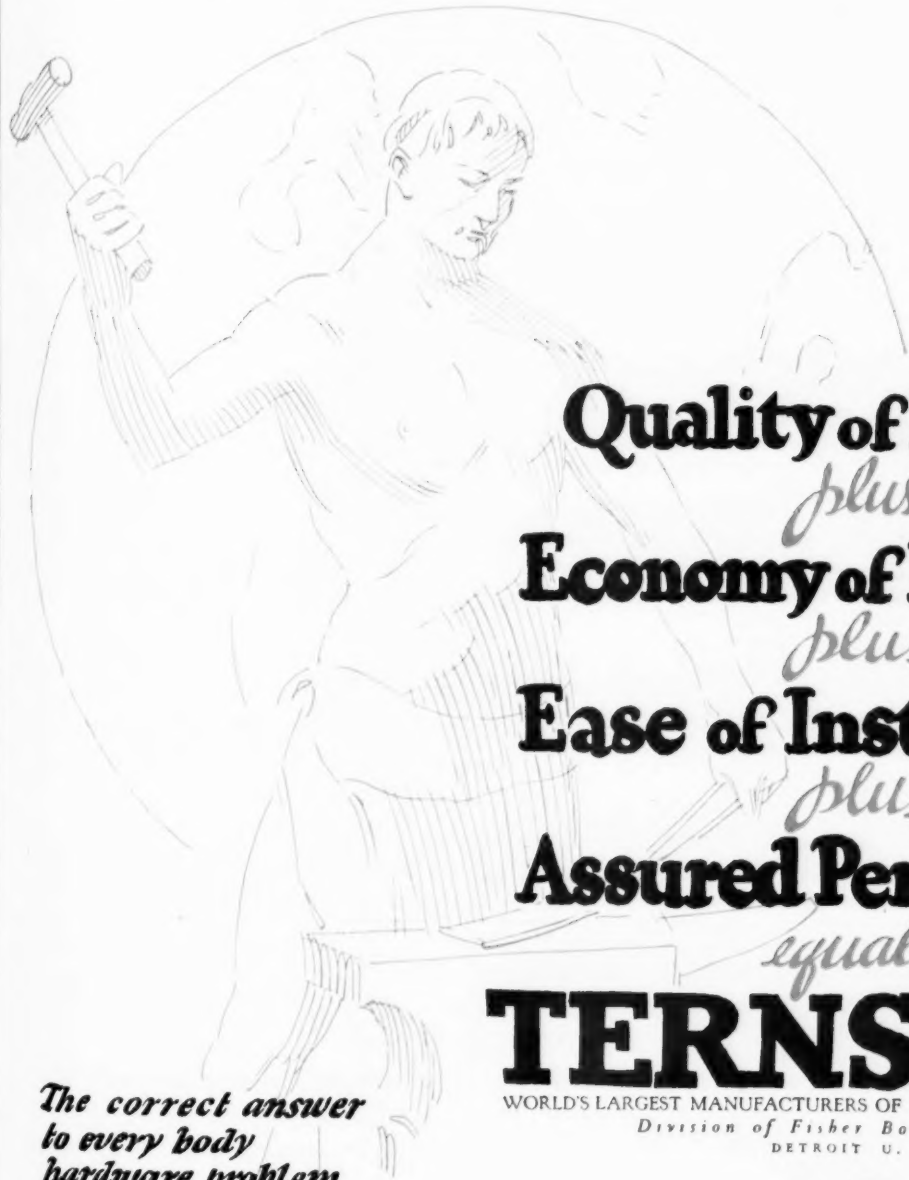
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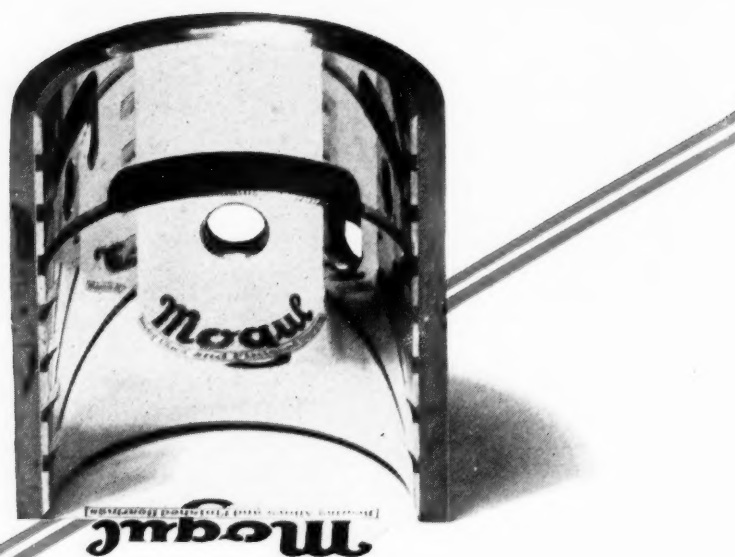
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The natural reflection of the trademark in this highly polished bearing surface indicates the perfect bearing surface of Federal-Mogul Close Limit Interchangeable Bearings. This is an unretouched photograph.

Introduced Yesterday Entire Capacity Sold!

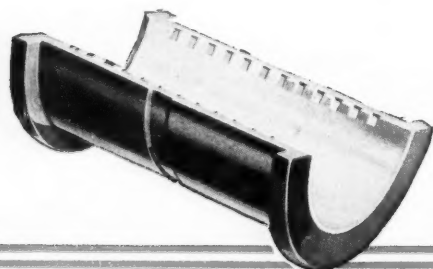
That's the record of Federal Mogul Close Limit Interchangeable Bearings. They were introduced but a few months ago, but had been so thoroughly worked out in advance that they were very rapidly accepted by leading automobile manufacturers.

These bearings are machined to accuracy limits never before heard of in bearing production. They reduce production costs. Their wide acceptance by automotive engineers is but a natural result of their merit. Production is being rapidly expanded to meet the demand.

A brief has been prepared completely covering the subject of Federal Mogul Close Limit Interchangeable Bearings. Copies will be sent to Automotive men on request.

**"A Manufacturer's
Reputation
is safe with
Federal-Mogul Products"**

FEDERAL-MOGUL CORPORATION, DETROIT, MICH.
A consolidation of the Muzzy-Lyon Co. and Federal Bearing & Bushing Corp.



Mogul FEDERAL

AUTOMOTIVE INDUSTRIES

VOLUME 52

New York, Thursday, June 4, 1925

NUMBER 23

States Work Toward Uniformity in 1925 Legislation

New motor laws built along more uniform lines. Gasoline taxes still growing. Compulsory insurance gets set-back.

By Russell Huffman

Secretary, Motor Vehicle Conference Committee

CONSIDERABLE progress has been made so far this year by the various State legislatures in effecting a saner and more uniform regulation of the motor vehicle.

As we approach the end of the 1925 legislative season, which witnessed the consideration by forty-one States of more than 2300 bills of interest to the automotive world, we find many new enactments now effective or soon to be put into practical operation.

Seven more States will regulate motor vehicle common carriers for the first time.

Although registration fees have met with only a slight increase, the gasoline tax has experienced such popularity as a revenue measure that only four States remain outside of the motor fuel taxing group.

New size, weight and speed restrictions tend toward a greater uniformity.

Compulsory liability insurance for all automobile owners has received a decided set-back, while certificates of title laws will operate in seven additional States.

Few States will require full stops to be made at railroad crossings, although other laws designed to decrease the hazards upon the highways have been enacted.

Since the beginning of the year every State in the Union, with the exception of



THE 1925 AVALANCHE! A TOTAL OF 2300 BILLS AFFECTING THE MOTOR VEHICLE INDUSTRY HAVE BEEN DUMPED INTO THE LEGISLATIVE MILLS OF THE VARIOUS STATES SO FAR THIS YEAR. ONLY ABOUT 400, HOWEVER, HAVE BEEN PASSED TO DATE

Alabama, Georgia, Kentucky, Louisiana, Maryland, Mississippi and Virginia, has been actively engaged in placing new laws upon the statute books. The past few weeks, however, have witnessed the adjournment of the legislatures of almost all of these States.

Connecticut, Florida, Illinois and Wisconsin are still in session, although it is expected that they will adjourn this month. Georgia will convene on June 24. West Virginia has reconvened in special session, while Texas and Washington will probably hold special sessions later in the year.

New York Leads in Bills

Quite naturally, New York, which heads the 1924 list of registered cars, introduced the greatest number of motor vehicle bills. Other States most active in this field were Massachusetts, California, Pennsylvania, Wisconsin, Minnesota and Ohio.

The great majority of these bills failed of enactment, only about 400 out of the 2300 having become laws up to the present time.

Although a comprehensive survey of the new regulations cannot be made at this early date, as some of the bills are still pending before the House or Senate or awaiting the exercise of the Governor's prerogative in their respective States, and official reports of many others in States recently adjourned have not yet been received, we can in a general way observe the trend of legislation and briefly summarize some of the more important laws.

Governmental regulation of common carriers is keeping apace with the rapid development of the motor truck and the motor coach as important links in our transportation system. This year seven additional States, Idaho, Indiana, Kansas, Massachusetts, Minnesota, North Carolina and South Carolina, have undertaken to regulate the business of transporting persons or property in commercial vehicles. This leaves only ten States, Arkansas, Delaware, Florida, Georgia, Louisiana, Mississippi, Missouri, New Mexico, Tennessee and Texas without such regulation, although the Florida Legislature, still in session, has such a bill before it.

Six States, however, have this year defeated an attempt to place the supervision of their motor transportation service under any governmental regulatory body, namely, Arkansas, Delaware, Missouri, New Mexico, Tennessee and Texas. In Iowa, North Dakota, Oregon and South Dakota, already under common carrier regulation, old laws have been replaced by new, while California, Connecticut, New Hampshire, Nevada, Ohio, Oklahoma, Rhode Island, Utah and Vermont have amended their present motor transportation laws. Amendments are still pending in Illinois and Wisconsin.

Regulation in Idaho

Idaho has placed the regulation of auto transportation companies under the jurisdiction of the Department of Law Enforcement, having defeated the bill which would have granted this authority to the Public Utilities Commission. This new law makes it necessary for such companies transporting either persons or property for compensation and operating outside of cities to obtain a permit, to file a bond or certificate of insurance and to pay a fee for the maintenance of the State highways amounting to 5 per cent of their gross earnings.

Indiana has provided that the Public Service Commission shall regulate such motor vehicle carriers, requiring applicants to file a bond or a certificate of insurance and to obtain a certificate of public convenience and necessity. Carriers operating over a regular route

for a period of ninety days prior to the taking effect of this act may be granted a certificate if application is made within thirty days therefrom.

This law comprehends all motor vehicles transporting either persons or property for compensation, although it expressly exempts taxicabs, hotel buses and motor vehicles "the major use of which for hire is only casual" and reserves to the cities a certain degree of authority over such regulation. Passenger carriers must pay a registration fee of \$6 per seat capacity while those operating exclusively in cities pay one-tenth of this fee.

Kansas has vested the Public Utilities Commission with authority to regulate all motor carriers transporting passengers or property for hire between fixed termini, with the exception of those transporting farm or dairy products or those operating only within a city of less than 25,000 inhabitants. This law also makes obligatory the obtaining of a certificate of public convenience and the filing of a bond or insurance policy or evidence of financial standing. Those carriers operating in good faith prior to the recent legislative session shall receive a certificate as a matter of course unless it can be shown that such service is not necessary to public convenience. The fees which passenger carriers must pay in addition to the registration fees range from \$40 to \$230, according to passenger capacity. Property carriers pay similar fees based on tonnage capacity.

Massachusetts for Regulation

Just before adjourning, Massachusetts passed a common carrier regulatory law. Motor carriers were already subject to regulation by the local authorities, but this enactment specifically places them under the general supervision of the Department of Public Utilities. Applications for certificates of convenience and necessity must be approved by the Division of Highways of the Department of Public Works, which has been granted authority to regulate weight, speed and the general operation of the carriers. Licenses must be obtained, as heretofore, from the cities through which they operate. Those legally operating prior to Jan. 7, 1925, shall be prima facie entitled to such a certificate. This law does not attempt to regulate freight carriers.

A long drawn out fight between the bus and railroad interests in Minnesota resulted in an act placing the control over common carriers with the Railroad and Warehouse Commission. Public convenience and necessity must be shown before licenses can be granted. Adequate liability insurance must be provided by the carriers. This law exempts taxicabs, hotel buses and those transporting exclusively agricultural or dairy products or transporting freight exclusively within any city or between contiguous cities. Existing carriers are protected to the extent that if they make application thirty days after the taking effect of this act they may continue to so operate until the final determination of their application. An important feature of this law is that the commission shall give reasonable consideration to the transportation service being furnished by any railroad, in determining the question of public convenience and necessity.

North Carolina has enacted a law regulating carriers of persons or property for hire by the Corporation Commission, though exempting farm and dairy trucks as well as sightseeing buses. This law applies only to motor vehicles operating a service between different cities or towns. Applicants are required to obtain a certificate and to file a bond or insurance policy.

The important provision of this law is that such carriers are limited in width to 86 in. and in gross weight

to 15,000 lb. for passenger traffic and to 9 tons for freight traffic. The Commission has been given the power to reduce the size and weight allowed whenever in its judgment the public safety requires it. It is stated, however, that vehicles of a greater width may operate until March 6, 1926. The carriers are heavily taxed, for the law requires a payment of 6 per cent of the gross receipts to be paid quarterly in advance.

After a long fight in South Carolina, a law was finally enacted giving the Highway Commission authority to regulate carriers of persons or property for compensation within or outside of cities. This law also exempts farmers, dairymen, lumber-haulers and sight-seeing buses. Five classes of certificates have been designated. The Commission shall grant a certificate as a matter of right where it appears that the applicant was operating in good faith on or before the effective date of this act. The law contains the usual provision for insurance or surety bonds. The fees are based upon the classification and amount to 1/50 of a cent per passenger seat times miles traveled for passenger vehicles and range from 1/8 to 1/2 of a cent per ton mile times miles traveled for property carriers. No additional fees for licenses are to be imposed by the State or any sub-division.

In those States which replaced their regulatory laws by new enactments we find the following points of interest:

To take the place of its 1924 motor carrier law, which had received an unfavorable interpretation by the courts, Iowa at the eleventh legislative hour enacted a new law, the chief features of which are that the fees are increased 100 per cent, that carriers are limited in gross weight to 9 tons on pneumatic and 7 tons on solid tires, and that in general the Board of Railroad Commissioners has more extensive supervisory powers.

North Dakota, in its new law, has divided auto transportation companies into two classes according to whether they operate between fixed termini or not, but it has not materially changed the fees.

In Oregon motor carriers are divided into six classifications and must pay a considerably heavier tax. Three-fourths of a mill per passenger mile has been assessed against passenger carriers and one mill per ton mile against freight carriers, although a deduction is allowed in each case for payment of registration fees.

South Dakota has also increased its fee from 2 per cent to 3 per cent of gross earnings (4 per cent for carriers operating on solid tires) and has divided the carriers into four classifications.

In many other States, as above indicated, amendatory provisions have been approved.

California has adopted a resolution proposing an amendment to the State Constitution to be submitted to the voters for ratification at the next general election which would permit the levying of a tax of 4 1/4 per

cent of the gross receipts of all motor vehicles transporting passengers as common carriers and 5 per cent of the gross receipts of property carriers, for the upkeep of State and county highways. This was deemed necessary in view of the unconstitutionality of the former 4 per cent gross receipts tax.

Connecticut, Oklahoma, New Hampshire, Rhode Island and Vermont have authorized street railways to operate buses.

Ohio has exempted from the common carrier regulations motor vehicles transporting agricultural products not regularly engaged in transporting for hire and has provided that certificates may be transferable. It has also exempted operators exclusively within cities or within the territorial limits of contiguous cities.

Nevada has levied a 4 per cent tax on gross earnings of common carriers operating over first class highways, allowing a deduction for registration fees.

Utah now requires motor vehicle carriers to file a bond or certificate of insurance.

There have been comparatively few laws this year materially changing the present rate of registration fees. The general tendency has been toward a slight increase. It is to be noted, however, that in many States where an increased gasoline tax was proposed, a proportionate decrease in registration fees was contemplated. In general, the new laws show an increase of these fees in Indiana, Iowa, New Mexico, North Dakota and Oklahoma, and a decrease in Idaho, Minnesota, Nebraska and South Carolina.

Michigan has changed the fees for passengers and

trucks from a horsepower to a weight basis.

An interesting situation arose in Ohio out of the fight over the gasoline tax. A 2-cent tax proposal strongly opposed by the Governor was finally passed over his veto. Legal steps were immediately taken to enjoin the collection of this tax, but it is reported that the constitutionality of the new law has been upheld in a recent decision of the Ohio Supreme Court. This law also provided for a 50 per cent reduction of passenger vehicle fees, effective Jan. 1, 1926, although the periodic reduction of fees for such vehicles registered during the year has ceased to apply. The result of this is that owners of such vehicles registering from now until the first of the year will pay a considerably larger fee than heretofore. The tax on commercial cars is now based upon the unladen weight of the truck, ranging from 70 cents to \$1.15 per 100 lb., instead of on horsepower.

Although registration fees show no great increase there was a marked increase in gasoline taxes.

Probably no other subject received so much attention, judging from the flood of bills introduced, as the tax on motor vehicle fuels and certainly no other bills were so consistently successful.

Only four States, Illinois, Massachusetts, New Jersey

(Continued on page 991)

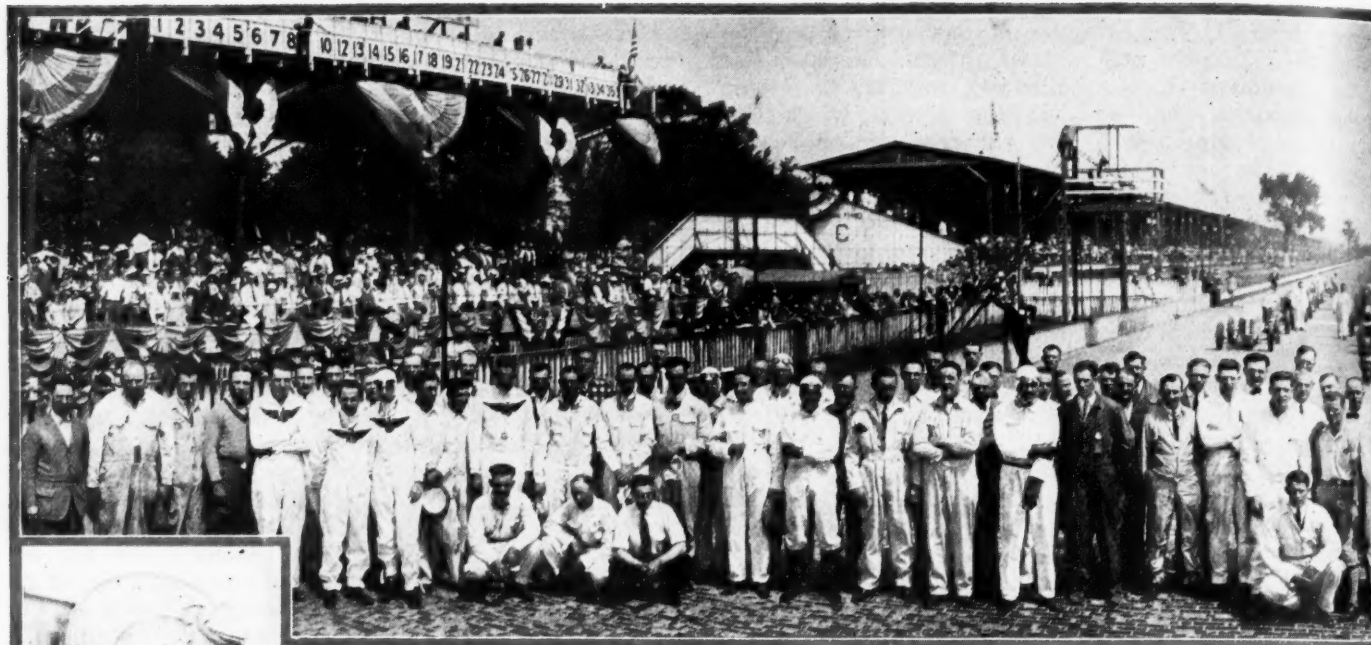
The Motor Vehicle Conference Committee

THE Motor Vehicle Conference Committee, of which Mr. Huffman, author of the accompanying article, is secretary, is a deliberative committee representing the following five organizations:

American Automobile Association, National Automobile Chamber of Commerce, Motor & Accessory Manufacturers, National Automobile Dealers' Association and the Rubber Association of America.

The aims of the Committee may be stated as follows:

1. To develop sound and equitable legislative principles best adapted to the motor vehicle and the public at large.
2. To foster an educational program in order that these principles may be placed before the public and State legislators.
3. To coordinate all motor vehicle interests in the various States.
4. To keep the member organizations informed of all legislative matters pertaining to the motor vehicle.



The line-up before the start of the thirteenth international speed classic. In the group are the event. Insert above, left to right—James Allison, president Indianapolis Speedway and Charles Schwab, who

He Won!

Peter De Paolo, winner of the 500-mile race at Indianapolis last Saturday, is a nephew of the famous veteran, Ralph De Palma, who won the big event on the same track in 1915. De Paolo is young but not a novice. He finished sixth in a Duesenberg last year

New Speed Marks Are Set at Indianapolis

DePaolo wins in Duesenberg with average of 101.13 m.p.h. Front-wheel drive Junior Eight Is second.

By Sam Shelton

TO Peter DePaolo goes the honor of driving the winning car in the thirteenth International 500-mile sweepstakes at Indianapolis last Saturday, and the car itself, a Duesenberg Special, flashing marvelous speed at the driver's will, brings a generous share of credit upon its builders, Fred S. and August Duesenberg, of Indianapolis.

But an accomplishment no less worthy was that of the Miller front wheel drive entered as a Junior Eight by R. C. Durant and driven at first by Dave Lewis and at the finish by daring little Bennett Hill. Making only two stops, this car, racing at Indianapolis for the first time, showed consistent speed and a performance that would not acknowledge defeat until the very last lap.

As a spectacle none of the 12 International 500-mile speedway races that have gone before could have surpassed the tenseness and the thrills of this, the thirteenth and safest of them all. It was a matter of great gratification to spectators and management that in establishing the new record of 101.13 miles per hour no driver was seriously hurt and the only accidents recorded were of a minor nature.

Peter DePaolo hurled his Duesenberg through the 500 miles in 4 hours, 56 minutes and 39.47 seconds, and only 53 seconds later Hill flashed across the line for second place.

DePaolo's average was 101.13 m.p.h. and that for the Junior Eight was 100.82.

Wade Morton, driving the Duesenberg Special that was started by Phil Shafer, was third with an average of 100.18 m.p.h.

These were the three cars to exceed the 100-mile average and furnished the thrills of a close finish.

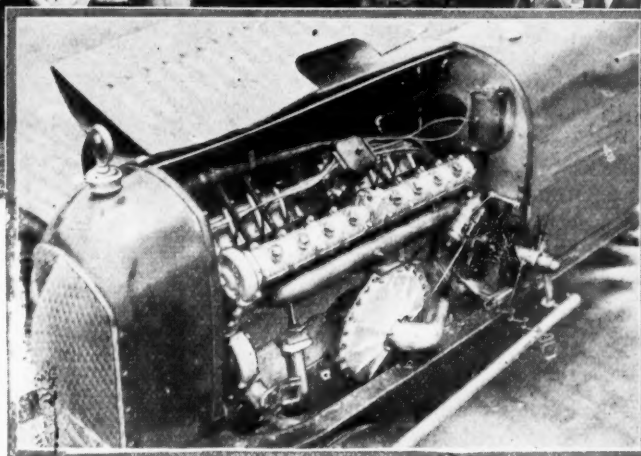
Harry Hartz in a Miller Special brought in the fourth car to exceed the average speed of last year's winner. His average was 98.89 m.p.h. and the winning speed last year was 98.23 made by L. L. Corum and Joe Boyer in a Duesenberg.

Thus Duesenberg has won the race two years in succession, and this year out of four cars of the Duesenberg make entered in the race two were among the first three to finish, and a third was among the first 10.

The only foreign entry in the race was Bordino with his Fiat. He finished just within the money—tenth place.



the officials, drivers and mechanics who participated in Association; Eddie Rickenbacker, who paced the first lap, acted as official referee



The Car

The Duesenberg which De Paolo drove to victory. View shows right side of engine. The supercharger, which played such an important part in the car's performance, is seen midway of the motor

The Junior Eight front wheel drive was a center of interest from the start. Another front drive Miller, a companion to this car, had been entered by Harry Miller, veteran builder of racing cars, and was to have been driven by Bennett Hill, but Hill found the car not to his liking and with the consent of the drivers he was permitted to start in a regular rear drive Miller and the other front drive was withdrawn.

When, in the course of the race, Hill's Miller was eliminated, he was selected to relieve Dave Lewis at the wheel of the Junior Eight Miller and he demonstrated two things, first that the front drive creation has speed to burn and, second, that he is a master driver of that type of vehicle.

DePaolo was a promising contender from the start. Taking the lead on the first lap he held it until the fifty-fourth lap and then it was taken from him by his teammate, Phil Shafer, in Duesenberg No. 9.

DePaolo's car was No. 12.

DePaolo at this time had slackened his speed somewhat, but a little later he demonstrated that at will he could take the lead and hold it. After he had relegated Shafer to

second place he held the lead until he was forced to stop for a tire change and oil and fuel.

Meanwhile Dave Lewis in the front wheel drive car had been steadily forging ahead, passing Shafer and others and taking the lead while DePaolo's Duesenberg was at the pit.

When DePaolo's car came out of the pit it was driven by Norman Batten—young DePaolo was taking a much needed rest. Batten, although driving skilfully, could not maintain the pace set by DePaolo and gradually the Duesenberg fell back.

Batten remained at the wheel of the Duesenberg only 34 minutes and during that time the leadership fluctuated, but when the car was called in and DePaolo put back in the pilot's seat Lewis in his Junior Eight front drive was well in the lead.

DePaolo touched his Duesenberg with the magic that made it spurt forward with renewed energy. One after another of the intervening cars he passed until he was less than 16 seconds behind Lewis and gaining.

And then, with the grandstands almost breathless with the tenseness of the situation, Lewis signaled his pitmen and was seen to slow up. DePaolo instantly passed him and Lewis overran his pit so that he had

How They Finished

Car	Driver	Time	M.P.H.	Prize Money
1. Duesenberg Spl.	DePaolo	4:56:39.47	101.13	\$20,000
2. Junior Eight	Hill and Lewis	4:57:33.15	100.82	10,000
3. Duesenberg Spl.	Morton and Shafer	4:59:25.79	100.18	5,000
4. Miller Spl.	Hartz	5:03:21.59	98.89	3,500
5. Miller Spl.	Milton	5:08:25.71	97.27	3,000
6. Miller Spl.	Duray	5:09:34.11	96.91	2,200
7. Miller Spl.	DePalma	5:09:46.86	96.85	1,800
8. Duesenberg Spl.	Kreis	5:11:26.86	96.32	1,600
9. Miller Spl.	Shattuc	5:13:20.48	95.74	1,500
10. Fiat Spl.	Bordino	5:16:36.97	95.75	1,400

A fund of \$10,000 for consolation prizes was also provided by the Speedway management. This was prorated among the cars not in the first 10 but still running when the twelfth car finished, according to position.

to go around again, losing additional time.

Lewis, having driven about 450 miles without relief was exhausted. Bennett Hill hopped to the seat and was off amid cheers.

Then and there a new demonstration of speed was uncovered. From more than a lap behind Hill began to creep up on DePaolo. The front drive Miller Junior Eight was performing marvelously. Well balanced, low, speedy, it took the turns almost as rapidly as the stretches.

In the 188th lap the two cars were running almost neck and neck down the home stretch, the Duesenberg being a lap ahead. Just before going into the turn Hill passed DePaolo, getting into the same lap with him. With only 11 laps to go Hill set out to do his best and the fact that at the finish he was only about half a lap behind tells the story.

In addition to Durant's front-wheel drive Junior Eight, which took second place, the Locomobile Company was represented in the contest by a Junior Eight Special. This car was also a Miller creation but was not a front-wheel drive. It was driven by Earl Cooper and was well out in front throughout the race up to the 124th lap when it hit the wall at the south turn and was so damaged that it had to be taken out. At the time of the accident Cooper had a nice lead and was figuring as a favorite to win.

Behind the thrilling scenes of the track competition lies the contest of the master builders, Duesenberg and Miller, to produce America's fastest racing cars.

For two years at Indianapolis Duesenberg has won but always Miller has been as a shadow behind.

In this year's race 17 of the Millers took part and four of the Duesenbergs. Outwardly the cars are much alike, but mechanically there are wide differences. Both made use of superchargers this year, Duesenberg on all four of his cars and Miller on most of his. The winning Duesenberg last year was supercharged.

The racing cars this year were permitted a maximum of 122 cubic inches piston displacement, but next year this will be reduced to 91 inches.

Charles M. Schwab, chairman of the Bethlehem Steel Corp., and also chairman of the Stutz Motor Car Corp. of America, was official referee of the race. He was one of the principal speakers at a dinner given the evening preceding the race at the Indianapolis Athletic Club by the Indiana Section of the S. A. E. and the Indianapolis Chamber of Commerce.

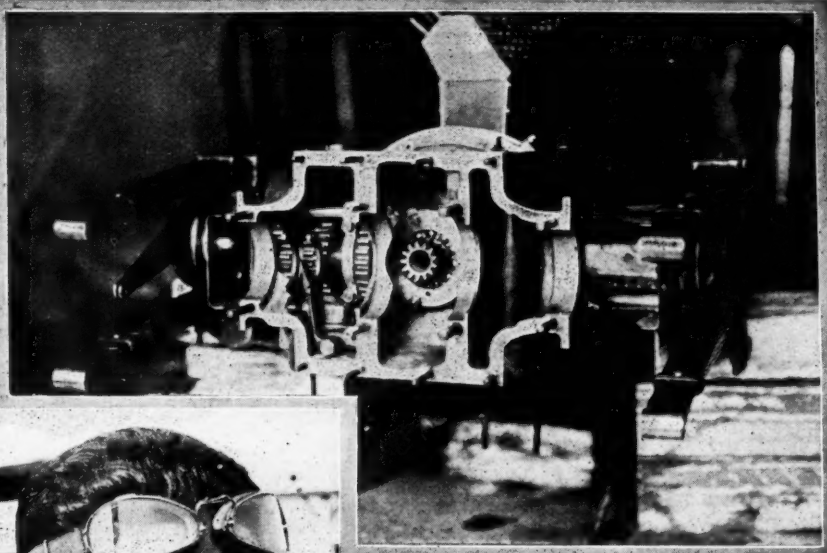
The Racing Car Specifications

CAR	Duesenberg Special	Miller Special	Junior Eight	Fiat	Kess-Line Special	Smith Special	Super Ford Sp.	Skelley Special
Cylinders	8-2.38x3.42	8-2.34x3.5	8-2.34x3.5	8-2.37x3.43	8-2.3x3	8-2.3x3.16	4-3.1x3.58	4-3.1x4
Firing	1, 5, 3, 7	1, 5, 3, 7	1, 5, 3, 7	1, 5, 3, 7	1, 5, 4, 8	1, 5, 2, 6	1, 2, 4, 3	1, 2, 4, 3
Order	4, 8, 2, 6	4, 8, 2, 6	4, 8, 2, 6	4, 8, 2, 6	2, 6, 3, 7	8, 4, 3, 7		
Cyl. Head	Det.	Int.	Int.	Int.	Int.	Int.	Det.	Det.
No. of Cyl. Catgs.	1	2	2	2	1	8	2	1
Valves per Cyl.		2	2	2	2	2	2	4
Valve Arr.	O.H.	O.H.	O.H.	O.H.	Rotary	O.H.	I-Head	O.H.
Valve Matl.	Tung.st.	Jadson	Jadson	Steel	Steel	Tung.st.	Tung.st.	Tung.st.
C. Sh. Drive	Gears	Gears	Gears	Gears	Gears	Gears	Gears	Chain
Pistons								
Matl.	Al. Alloy	Al. Alloy	Al. Alloy	Al. Alloy	Al. Alloy	Al. Alloy	Al. Alloy	Bunite
Length	2.57	3.00	3.00	2.56	2.12	3.00	3.00	4.00
Rings	Three	Three	Three		Four	Three	Three	Three
Piston Pin								
Dia.	1 1/8	3/4	3/4		5/8	3/4	0.74	3/4
Length	2 1/2	2	2		2 1/4	2 1/4		2 1/4
Bearing		Floats	Floats	Piston	Piston	Floats	Piston	Piston
Connecting Rod								
Material	Ch.N.St.	Ch.Va.St.	Ch.Va.St.	Steel	Steel	Steel	Steel	Steel
Length	6 3/4	7	7	6.9	6	5 1/4	7	7
Weight						14 oz.	16 oz.	
Wght of Pn. & Rod					15 oz.	26 oz.	28 oz.	
Crankshaft								
Material	Ch.N.St.	Molyb.St.	Molyb.St.	Steel		Ch.Va.St.	Ch.Va.St.	Ni.Mo.St.
No. Bearings	Three	Five	Five	Ten	Nine	Nine	Three	Five
Fr. Brg.	No. 410 B	1 1/4x2 1/2	1 1/4x2 1/2	1.73x.98R.	2 1/2x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8
R. Brg.	No. 216B	1 1/4x1 1/8	1 1/4x1 1/8	1.73x.98R.	2 1/2x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8
Int. Brg.	2 1/2x2 1/4	1 1/4x1 1/8	1 1/4x1 1/8	1.73x.98R.	2 1/2x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8
Pin Brg.	2 x 1 1/8	1 1/4x1 1/8	1 1/4x1 1/8	1.73x.98R.	2 x 1 1/8	1 1/4x1 1/8	1 1/4x1 1/8	1 1/4x1 1/8
Lubrication								
Type	Press.	Press.	Press.	Press.	Press.	Press.	Press.	Press.
Pump Type	Gear	Gear	Gear	Gear	Gear	Gear	Gear	Gear
Cooling								
System	Pump	Pump	Pump	Pump	Thermo-S	Pump	Pump	Pump
Radiator	U. S.			Fiat	Fed.	Fed.	Fed.	Fed.
Comp. Ratio		6.5 app.			4	6	6	7.5
Displacement	121.5	120.2	120.2		117.8	120	120	121.7
Suspension	3 pt.	3 pt.	3 pt.	3 pt.	4 pt.	3 pt.	3 pt.	3 pt.
Max. R.P.M.	5800	5800	5800	5600	6000	5000	5000	
Crankcase Up Half	No	Yes	Yes	Yes	Yes	Yes	No	No
Sen. Cast.	Al.	Al.	Al.	Al.		C.I.	C.I.	C.I.
Material								
Low Half	Al.	Al.		Al.		Al.	Al.	Al.
Material								
Supercharger								
Used	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Type	C. Blower	C. Blower	C. Blower	Roots Bl'r	Crankcase	Roots Bl'r	Roots Bl'r	
Speed Ratio	5-1	5-1	5-1	1		3/4	3/4	
Location	Bet. Carb. and Eng.	Bet. Carb. and Eng.	Bet. Carb. and Eng.	Ahead of Carb.		Bet. Carb. and Eng.	Bet. Carb. and Eng.	
Drive	Gear from Pumpshaft	Gear from Cam Shaft	Gear from Cam Shaft	Crankshaft		Gears	Chain	
Carburetor								
Make	Winfield	Winfield	Miller	Fiat	Miller		Juhasz	
No. and Size	One	One-2"	One-2"	One-2"	Three-1 1/4"	One-2"	One-2"	One
Fuel Feed	Press.	Press.	Press.	Pump	Press.	Press.	Press.	
Ignition								
Make	Delco	R. Bosch	R. Bosch	R. Bosch	Delco	Delco	Apollo	R. Bosch
Battery								
Make	ide				Willard	Exide		
Wheelbase	9	100		100	99	102	100	102
Tire Size	30x5 1/4	30x5 1/4	30x5	30x5 1/4	30x5	30x5	29x4 1/4	28x4
Clutch								
Make	Own	Own		Own	Borz&Beck	Long	Ford	Long
Type	D. Disc	Disc		Disc	Disc	D. Disc	Ford	Disc
Gears								
Make	Own	Own	Miller	Own	Warner	Ford	Mechanics	
Location	Unit P.P.	Unit P.P.	Fr't Axle	Unit P.P.	Unit P.P.	Unit P.P.	Unit P.P.	Unit P.P.
No. Speeds	3	3	3	3	3	3	3	3
Universals	Fabric	Fabric	Fabric	Metal	Metal	Metal	Metal	Metal
Rear Axle								
Make	Own	Own	Miller	Own	Columbia	Green		
Type	3/4 ftg.	3/4 ftg.	Dead	3/4 ftg.	3/4 ftg.	3/4 ftg.	3/4 ftg.	3/4 ftg.
Final Dr.	Shaft	Shaft	Fr. Wheel	Shaft	Shaft	Shaft	Shaft	Shaft
Gear Ratio	46/13	4/1	51/13	2/1	4/1			3 63/1
Prop. by	Tube	Tube	Fr. Springs	Tube	Springs	Tube	Tube	Tube
Service Brakes								
Type	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal
Location	R.W.	R.W.	R.W.	All W.	Prop. Sh.	F.W.	F.W.	R.W.
Emerg. Brakes								
Type	External	Internal	Internal	Internal	Internal	External	External	External
Location	Trans.	F.W.	Trans.	R.W.	R.W.	Trans.	Trans.	R.W.
Front Axle								
Make	Own	Own	Miller	Own	Columbia	Green		
Steering Gear								
Make	Ross	Miller	Miller	Fiat	Gemmer	Ross	Ross	Ross
Type	Cam	W. & W.	W. & W.	W. & W.	W. & W.			Cam
Wheel Turns	2	2	2	1 1/2		2 1/2	2 1/4	1
Fr. Springs								
Type	1/2 ell.	1/2 ell.	Two 1/4 ell.	1/2 ell.	1/2 ell.	1/2 ell.	1/2 ell.	Transv.
Size	33x2	32x1 3/4		31x2	31x1 3/4	26x1 1/2	26x1 1/2	
Rear Springs								
Type	1/2 ell.	1/2 ell.	1/2 ell.	1/2 ell.	1/2 ell.	1/2 ell.	1/2 ell.	Transv.
Size	36x2	39x1 3/4		36x2	42x1 3/4	32x1 1/2	32x1 1/2	
Chassis Lubrication	Dot	Alemite	Alemite	Fiat	Alemite			Zerk
Rims	Dayton	R.W.	R.W.	R.W.	Dayton	Dayton	Dayton	Dayton
Wheels	Wire	Wire	Wire	Wire	Wire	Wire	Wire	Wire

NOTE—The above specifications of the Miller Special also apply to R. J. Special, Jones-Whittaker Special and to Cooper's Junior Eight.



Dave Lewis



This view shows the transmission and main drive shaft assembly of the front-wheel drive Junior Eight which was second at Indianapolis. Dave Lewis was at the wheel of this car when the race started and Bennie Hill relieved him to make the whirlwind finish

Race Also Victory for Balloon Tires and Superchargers



Bennie Hill

By B. M. Ikert

THERE were those who said these little 122-cubic inch race cars which competed in this year's 500-mile Indianapolis race would "burn up" because of the superchargers. There were those also who said the front wheel drive Miller, entered as a Junior Eight Special, would be tricky on the turns and there was considerable doubt likewise in the minds of many, experts included, that the balloon tires would come through such terrific punishment imposed by a long distance race over the heated bricks of the Hoosier oval.

But the cars did not burn up and the supercharger theory once more proved its worth. The front-wheel drive Miller proved conclusively that you can combine drive and steering in the front axle of a racing car and not have the car tricky on turns.

And that balloon tires are practical for high sustained speeds such as they never encounter in ordinary motor vehicles is proved by the fact that in this year's race 36 tires were changed, as compared to 37 last year.

Besides, in last year's race the average miles per hour of the winner was 98.23 for the 500 miles, whereas this year it was 101.13 m.p.h., and the day was much warmer than last year.

Aside from being an outstanding victory, therefore, for the eight-cylinder Duesenberg which started its record-smashing business last year in the 500-mile race, we have three big developments to record: First, the application of the supercharger to maintain compression; second, the driving of the front wheels of a race car, and third, the use of balloon tires in racing.

Regarding supercharging, the race showed that only a year was necessary to develop and perfect this mechanism. It will be recalled that the winning Duesenberg last year was a supercharged car and when it so ably demonstrated its superior speed and performance, it naturally followed

that superchargers came into general use in all race cars of worth. And so, while all of the cars in this year's race were supercharged-engined jobs, the remarkable thing is that in no case did the supercharger mechanism give any trouble, nor can the supercharger be blamed directly or indirectly for any mechanical troubles which either put the cars far back in the running or eliminated them.

In fact, the supercharger makes possible several things that ordinarily cannot be had without such a mechanism. One has but to recall the many instances of valve trouble in the old days of cams which quickly opened the valves and just as quickly seated them, imposing a terrific hammering or pounding on the valves and seats.

All this is done away with when the supercharger is used, because it allows the use of cams with easy opening and closing characteristics, saving the valves and springs materially. That is one reason why in this year's race there was not a single case of valve trouble on any of the cars.

And that is not all, valve timing does not have to be set to a hair as in the days before the supercharger and it may be surprising to many to know that the timing of these special race creations is practically the same as in stock engines of passenger cars. As Mr. Duesenberg ably expresses it, "Valve timing doesn't seem to make much difference one way or another; the supercharger takes care of it."

While the Duesenberg, Miller and Fiat cars are agreed on the use of superchargers, they differ greatly in the type and location of the mechanism which forces the mixture under pressure to the cylinder. In all cases the superchargers (meaning the blower proper) are driven by mechanical means from the engine, but in the Duesenberg it is placed alongside the engine and in the Miller cars behind the engine, while in the Fiat it is directly in front of the engine and driven from off the nose of the crankshaft.

The Duesenberg and Miller supercharger are of the centrifugal type and that of the Fiat of the Root's blower type.

The Fiat blower draws in air through a funnel shaped pipe, which is located at the right of the engine near the front, this air then being passed through a special radiator below the regular one. This is done to cool off the air which is heated due to being compressed, for the air if excessively heated when entering the engine would reduce the efficiency.

From this radiator a large pipe in the right frame channel carries air back to the carbureter, through which it passes up through the intake manifold to the eight cylinders.

At the rear of the engine, however, is a pump, driven from the crankshaft by means of gears and taking a portion of the air which comes back from the air radiator. This pump also operates to draw gasoline from the tank and mix the two, sending a rich mixture of air and gasoline to the carbureter. Here the rich mixture under pressure from the pump meets the air stream from the blower, also under pressure, and the combination serves as fuel for the engine.

Mixture Passes Through Tube

The mixture on its way to the carbureter, however, must pass through a tube at the top of an equalizing chamber in order that the impulses of the pump may not be transmitted to the carbureter and cause erratic action. From the bottom of this equalizing chamber, a pipe connection leads to a gage on the instrument board, while another gage is connected to the air pipe, just before it reaches the carbureter. This enables the driver to see that the proper pressure ratio is being maintained at all times.

Coming to the front-wheel drive Miller car which performed so admirably in the hands of Dave Lewis and Bennie Hill, we find some interesting things. Those who saw the car perform are agreed it romped around the turns as smoothly, if indeed not more so, than any of the rear wheel driven jobs. It did not skid as many said it would. It was not unmanageable. Nor did front wheel tires suffer any from the double duty of taking both the drive and the steering.

By driving the front wheels it is possible to get the car much slower, chiefly since the drive shaft to the rear axle is eliminated. It also is possible to get a very good weight distribution and this was in evidence from the way in which the car held the track.

In a vehicle of this kind there is no tendency for the rear of the car to swerve around to the front, especially since the rear wheels have a slightly narrower tread which imparts a trailing effect.

Also, since the right front wheel, especially, is driven positively, the often destructive effect of centrifugal force is minimized because the back axle does not tend to push the front wheel and impart to the latter a sort of shearing effect.

Thus, instead of having all of the centrifugal force of the car literally "pile up" on the right front wheel on a track only slightly banked as compared to the board tracks, we have the front wheel drive car running out of such a condition by virtue of applying power to the front wheels and allowing the rear wheels to trail.

Steering should not hamper the application of power to the front wheels nor should the driving of the wheels play havoc with the steering.

This is merely a question of correct design and a proper selection of materials.

One Front Drive Advantage

It is well to bear in mind that in a conventionally

driven car, race car or otherwise, the front axle is dragged along by the front springs, and steering may be hampered by the action of driving the rear wheels, as is demonstrated when a car skids and one of the front wheels acts as a pivot around which the entire mass revolves. It is easy to see that driving the front wheels overcomes this tendency.

When a front wheel which is positively driven encounters an obstruction it rolls over it because it has traction, and it makes no difference how much the front wheels are turned to the right or left. As long as the power is applied to the wheels the car will maintain the desired direction of travel, assisted, as has been pointed out, by trailing action of the rear wheels, the latter, in the case of the Miller front-wheel drive car, merely running free on a dead axle.

While it is true that the cars in this year's race smashed all previous records, so far as the first four cars to finish were concerned, and front-wheel drive came into its own, it might be said, in view of modern progress in the design of automotive vehicles, that the day is not far hence when we can expect to see race cars in which all four wheels are driven.

Excellent results have been secured in the past by driving the rear wheels only, and in this year's race the Lewis-Hill driven front-wheel drive Miller certainly proved beyond a doubt what can be accomplished in driving the front wheels only. Now, then, if both methods of drive have their advantages, surely it is not unreasonable to assume that vehicles of the future may be built incorporating the salient features of both.

Complication Not to Be Feared

The first response to this probably will bring considerable talk of complication, but complication, after all, is nothing to be feared when it produces a more efficient and better performing car. The supercharger, for example, has complicated the mechanism of the race car of today, but we have faster, more dependable and better race cars than we ever had.

Driving the front wheels on the Miller car of Dave Lewis complicated the front end of the vehicle, but we have only to look at the race results to see how this complication eventually manifested itself on the performance of the car.

All of the cars used Firestone balloon tires, 30 by 5.25, and carried on the average about 30 lb. pressure. Those who expected to see the balloon tires "fall down" were disappointed, because the tires gave a most remarkable account of themselves. It is the first time the balloon tire has been tried in competition on the Hoosier track and that it came through with flying colors is clearly shown by the result. There was one less tire change, to be exact, than in last year's race.

All told, there were 36 tires changed in this year's race and of these 18 were right rears, 10 were right fronts, 6 were left rears and two were left fronts, the latter being precautionary changes made when Hartz and Duray changed tires all around.

It is interesting to note that on the winning car only one tire was changed, while on the front-drive car which earned second place a front and rear were changed on the right side, illustrating the effect produced by centrifugal force on the turns.

The day of the balloon tire has come. Perhaps the supercharger and the front-wheel drive are not far distant as regular features of passenger vehicles. New things are often first tried out in this great automotive laboratory, which has contributed so much to the development of the motor car of today. It will be interesting to see what this year's race brings forth.

Automotive and Rail Men Divided on Motor Regulation

*Cordial spirit, however, prevails at Mid-West Motor Transport Conference
in Chicago and further progress is made toward cooperation.
Regulation issue will go before next Congress.*

By Clarence Phillips

THE movement to bring about a better understanding between the different agencies of public transportation—automotive, electric and steam in particular—won another victory as the result of the Mid-West Motor Transport Conference, which was held in Chicago at the La Salle Hotel, May 27 and 28.

A review of the addresses and discussions brings out the following points on which the automotive men and the electric and steam railway representatives who attended the gathering were in accord:

That there is a distinctive place in transportation for each of the three services.

That there is a place, therefore, in the national transportation system for the truck and the bus.

That the place of electric transportation as a carrier of mass transportation cannot be denied.

That the truck can be used advantageously in conjunction with steam line freight service for short hauls and light loads and that the bus can be logically coordinated with the electric line.

That coordination of all transportation facilities wherever possible is desirable and in the direction of general economy and the public interest.

It was a meeting much on the order of the one held in New England last December and, as in the case of the New England gathering, was sponsored by the National Automobile Chamber of Commerce. The New England meeting blazed the trail of friendly discussion which the one in Chicago materially widened.

There were some disagreements and it could be seen that positions were taken at times from which there likely will be no early recessions, but there was nothing that could be called "heat" in any of the arguments.

It was on the matter of regulation of highway transport that the widest breach between the rail carriers and automotive industry was revealed. Boiled down to a few words, the automotive interests hold that while there should be ample regulation of highway transportation, and while the automotive industry welcomes what it considers proper and practical regulation, the jurisdiction of the Interstate Commerce Commission over interstate motor vehicle common carriers, if the Commission comes into the picture, should be limited to the granting of certificates of necessity and convenience.

On the other hand, railroad spokesmen held that the jurisdiction of the Interstate Commerce Commission should go much farther, their idea being that motor transport should not ask for "benefits" and at the same time attempt to evade responsibilities similar to those imposed upon other carriers.

The real "regulation" of the motor transport, under

the position of the automotive men, would be by State authorities, rather than Federal, the point being made that highway transport essentially is local rather than national and hence not a matter for Federal concern. Answering this argument, the railroad men held that the plan is impossible because the State has no authority over the interstate motor carrier. And they held further that "regulation" of highway transportation by the Interstate Commerce Commission under authority restricted to issuance of certificates would in effect amount to no regulation at all.

This subject came up mildly the first day when one of the railroad speakers predicted that Congress would be asked to pass on a bill at the next session on the subject of interstate highway transport regulation. His suggestion was that centralization of full authority in the Interstate Commerce Commission would best solve the problem and be of material ultimate benefit to the motor carriers.

To give more fully the stand taken by the automotive industry in this connection, it might be well to quote resolutions recently adopted by the National Automobile Chamber of Commerce which were read in the course of

T. R. Dahl

MR. DAHL, vice-president of The White Co., was one of the speakers for the automotive industry at the Mid-West Motor Transport Conference. He dealt with motor carrier regulation and read the resolutions on this subject recently adopted by the N. A. C. C.



an address by T. R. Dahl, vice-president of The White Company and an active N. A. C. C. member. The resolutions were as follows:

Congress should enact legislation giving the Interstate Commerce Commission the power to grant or refuse certificates of public convenience and necessity in motor vehicle interstate commerce. In view of the fact that the Interstate Commerce Commission is already burdened with all it can handle and because of the fact that the states through which such motor vehicle lines operate are primarily interested in

such operation, the authority of the Interstate Commerce Commission should be limited to the granting or refusal of certificates. Certificates shall be granted as a matter of form in all cases in which the application for the certificate is accompanied by certificates from the State Public Utility Commissions of the various states through which the motor vehicle lines are to operate, certifying that such lines will serve the public convenience and necessity. (The term State Public Utility Commission comprehends state authorities regulating public utilities, regardless of what they may be called. In states where there is no public utility regulation of motor vehicle common carriers the State Highway Commission may issue such certificates.)

In cases where certificates from State Public Utility Commissions cannot be obtained by the applicant, the Interstate Commerce Commission shall grant a hearing on the application for a certificate in order to determine whether such motor vehicle operation is a matter of public convenience and necessity. In determining that fact the Commission shall take into consideration existing motor transportation facilities. In all other questions involving certificates the Interstate Commerce Commission shall act as an arbiter in determining the difference of opinion between the Public Utility Commissions of the states through which such lines operate. All other regulation of operation of interstate motor vehicle common carriers shall be exercised by the State Utility Commissions of the states in which the operation is carried on.

Resolutions Defeated

An effort to incorporate the sense of the foregoing into resolutions presented to the conference met with failure despite argument in their support. The convention adjourned with the automotive and rail interests much divided on the question. Likely the points of difference will be given an airing later on in Washington, as it seems to be generally accepted that legislation along the line of highway transportation regulation will be put before Congress, and from expressions of railroad executives at the Chicago meeting it seems inevitable that the Interstate Commerce Commission will be urged as the proper regulatory tribunal under wide authority.

And unless something happens to alter the present outlook for the automotive interests, it seems also assured that they will be on the congressional ground next winter to represent their case and fight for the only sort of regulation from Washington that they think would be just. Railroad men declare motor transportation, while entitled to a place in the handling of traffic, is still an experimental quantity that cannot yet be assigned altogether to definite functions.

Even conceding this point, the motor industry can argue to the effect that, as many of the motor vehicle's logical functions are still to be determined, it should, for another good reason, not be hampered by restrictions. In other words—give it a chance to find itself and give the public the fullest chance to judge its virtues.

The keynote address on the opening day of the conference was given by A. J. Brosseau, president Mack Trucks, Inc., who said in part:

"The private passenger car, the public bus and the motor truck serve not alone the public but the other and

older transportation agencies as well. The task which confronts us is to find out how to employ these instruments to the best advantage of all. We, of the motor industry welcome to this conference the representatives of the public and you who represent steam and electric transportation, because we know that the adaptation of our service to the public welfare is a problem beyond the ability of one group to solve.

"Highway transportation is here. The questions which it brings with it are pressing for answer. The initiative rests with us. Wastage in the form of uneconomic operation should be avoided. Sane regulation in public interest should be asked; not frowned upon. A free and full discussion of every phase of the problem should be encouraged."

Mr. Brosseau's call for frank analysis of the problem was complied with, the matter being delved into from many angles. While the conference, as already stated, was free from rancor, those who talked did not hesitate to speak their minds.

Competition with Railroads

From the railroad side there promptly came the concession that railroads should make the best possible use offered in the motor truck, but the audience was cautioned to remember that when an automobile owner, whether of a passenger car or truck, engages in the business of transporting persons or goods for hire, he is engaged in **transportation**—"the same kind that we are in."

In a discussion of the subject "Why the motor truck is successful as a railroad ally" it was clearly demonstrated that the railroads are far from completely sold on the proposition of direct collection and delivery. C. W. Galloway, vice-president of the Baltimore & Ohio, seemed to sum up the railroad's position when he said that in his opinion the job of the railroad ends with delivery at the railhead. After that, he said, it should be up to others to take the load the rest of the way. He said that while he has given much thought to the subject and has attended many conferences where it has been discussed he is still as much at sea as ever.

While Mr. Galloway admits the economic value of store door delivery theoretically, he asserted that he does not believe it is a business which the railroad should get into.

Another railroad spokesman in taking the same position defined the railroads' transportation duty as being of a wholesale nature while the truck is the retail factor. He did not believe the wholesaler should attempt to go into the retailer's field.

Shippers Appreciate Problem

Robert C. Ross, of Chicago, representing the Midwest Advisory Board, a shippers' organization, agreed with the railroad men that store door delivery is a great problem and one for which a solution will not be easily suggested. It is too big and complicated a thing, he said, to act on hastily, investigation convincing his organization that there are more knots in the problem than "at first appeared on the surface." He said, however, that the truck had greatly relieved the Chicago situation in inter-city delivery and that due to the truck many industries had been able to move from central sections to the outskirts.

Back to the subject of coordination. It came up interestingly Wednesday afternoon at the Motor Truck session over which W. C. Parker, manager of the bus department of the Reo Motor Car Co., presided. Here representatives of electric lines told of actual accomplishments in the use of buses in conjunction with electric cars. These men

see great opportunities in buses for auxiliary transportation service. It was not a question with them as to whether there should be coordinated employment of the electric car and bus, but rather, as two substantially put it in almost the same words: "There is no argument. The question is—what are we going to do about it?"

E. F. Zelle, president of the Minnesota Motor Bus Association, Minneapolis, asserted that the biggest competition is not the steam or electric line but the private automobile owner. H. B. Stowe, superintendent of automotive equipment, Detroit Street Railways, in telling of this company's development of bus feeders, foresaw a much larger place in the future for bus operation. He is convinced that the bus and the electric car can be brought together for effective use in local and express service, but he was not able to say whether the electric car or the bus eventually will become the proper express unit.

John A. Ritchie, president of the Chicago Motor Coach Company, took a broad view of the situation when he suggested that there should be coordination of the national transportation organizations. He asserted that motor coach manufacturers and street railway organizations are coming to the common thought that their services, if properly articulated, are not truly competitive.

Some Tax Figures

There were many very interesting papers during the conference. One which was presented by John E. Walker, former tax advisor of the United States Treasury on: "Who Pays for the Highways?" Here are some of the high spots:

Special motor vehicle taxes in 1923 amounted to 40 per cent of the total highway expenditure and 90 per cent of the entire state highway program.

Forty-three per cent of this tax total reached the state highway while 50 per cent went to Federal Aid, state, county and local rural highway projects.

Motor vehicle registration has increased ten times since 1924, while the registration fees and gas taxes alone paid by the vehicle were 25 times greater in 1924 than in 1914.

The annual highway program is stabilized at approximately one billion dollars per annum. Less than \$9 per person.

Approximately 60 cents out of each motor vehicle special tax dollar is directly available for highway use.

W. M. Jardine, secretary of Agriculture, in delivering the feature address of the closing session urged the transportation interests in this movement to "seek out the facts in the situation," saying "in that manner only can they accomplish anything."

"I have faith that in the long run," said Mr. Jardine, "the motor vehicle will find its place in the whole scheme of transportation naturally and inevitably as have all the earlier 'new users' of the highways; but we may help it find that place by wise restraint of its more enthusiastic proponents and refraining from regulation which may have a crippling effect."

"One thing we know very definitely—there is no basis for the fear that the motor truck is going to compete seriously with the railroads. The truck has found its place in the short haul and it is not taking over any business that the railroads can do as well or better."

He said that the reason the truck is taking some business from the railroads in short haul is because the truck gives better service.

Resolutions adopted followed considerably the lines of those adopted at the New England Motor Transport Conference in December. Some of the articles are quoted below in gist or fully:

Adequate transportation of all types is essential economically to progress in Mid-Western States.

Public interest will be best served through the cooperation of different carriers rather than through wasteful competition.

The motor carrier must take out liability insurance for the protection of persons and property.

State regulatory bodies having control over motor carriers should be vested with the powers they exercise in controlling other public utilities.

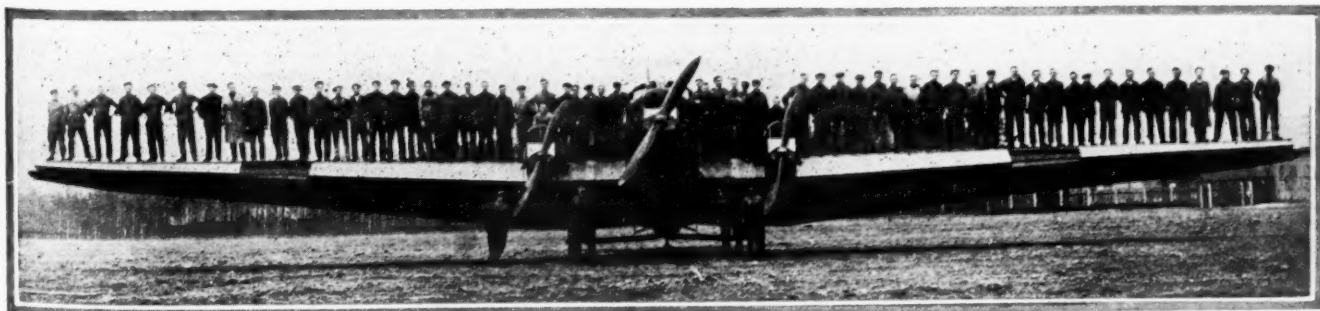
Regulation of highway traffic, including size, weight and speed of motor vehicles should be made as uniform as possible and should be specifically provided by law.

Congress should enact such legislation as would make possible public regulation of the common carrier motor vehicle engaged in interstate commerce.

That the war excise tax on motor vehicles, their parts, bodies and accessories be taken off as soon as such a step is possible.

That in order to continue the relations established through the Mid-West Transport Conference a permanent committee should be created to be known as the Mid-West Transportation Council and consisting of the agencies represented in this meeting to correlate the efforts of existing transportation agencies.

Sixty-three Men on Wings of This Giant Plane



—International Newsreel Photo

To demonstrate the strength of the wings, 63 men were ranged along the top of this monster all-metal passenger plane of German design, built recently by the Junker Works.

the rear main bearing will be followed and all dimensions will pertain to this part, as the procedure is typical for the three different sizes. This bronze blank leaves the first operation with a rough bore of 2.260-2.264 in.

Following the rough boring operation, the blanks are passed along to the Reed-Prentice lathe, which is equipped with an expanding mandrel operated by an air cylinder and a special back arm attachment for back facing and chamfering. Individual electric drive, which is characteristic of every machine in the line, is used also at this station. As illustrated in Fig. 2, the rough bored blanks are secured by the expanding mandrel, the carriage advances with the outside turning tool, the feeds and speeds being comparable to those of the first operation. While one tool post on the carriage contains the outside turning tool, another which is shown at the right carries a chamfering tool that acts just as the carriage strikes the stop at the end of the cut. Meanwhile the back arm carrying two facing tools has swung downward and faced the ends of the blank. Another tool which is hinged in the headstock, chamfers the back end of the blank, being swung into position by the travel of the carriage just before the stop is reached. The outside diameter at the completion of this operation is 2.575-2.580 in.

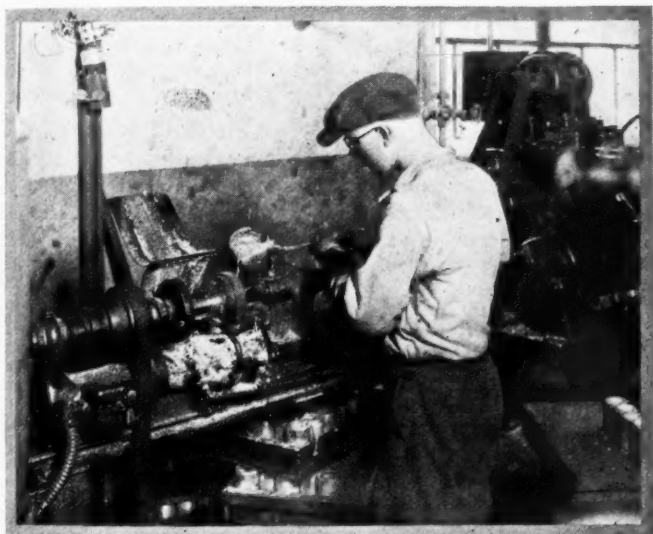


Fig. 3—Pouring babbitt lining in specially equipped speed lathe. Spindle does not rotate until after babbitt has levelled off when cooling air blast is applied

At this point the castings are machined all over and therefore are ready for the babbitting process. An acid bath precedes the tinning operation which is performed in a gas-fired furnace. The tin bath is maintained at 625 deg. and the shell is tinned all over and in the process brought up to a temperature about equal to that of the bath. At this stage the shell is transferred to a specially equipped speed lathe for the babbitting operation. As shown in Fig. 3, the spindle is equipped with a counter-bored ring which just fits over the outside of the shell. At the tailstock, a fixed ring contains another counter-bored ring which rotates freely on a ball bearing mounting. Like the ring at the headstock, this ring also fits over the outside of the shell. As shown, a duct which permits the entrance of the babbitt to the interior of the shell is formed in the spindle which carries the ring at the tailstock. Also provision is made for the introduction of an air stream at the tailstock. The shell is slipped into the ring at the headstock and held in place by turning up the screw in the tailstock.

Babbitt is heated to 825 deg. Fahr. in another gas fired

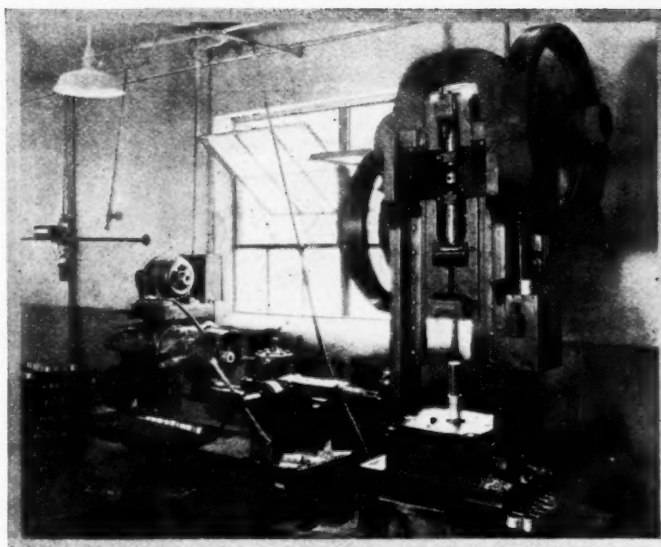


Fig. 4—Illustrating equipment for preliminary and final finishing babbitt lining, two boring operations followed by broaching and burnishing

furnace, both of which are regulated by pyrometers. High tin base babbitt of the following composition is used: Tin, 85 per cent; copper, 7.5 per cent; antimony, 7.5 per cent. Using an ordinary ladle, the operator pours the necessary amount of molten babbitt into the opening in the tailstock spindle while the shell is stationary. After a brief interval which is allowed for levelling and the flotation of dross and dirt, the spindle is set in rotation at 900 r.p.m. by the vertical belt shown. At the same time an air blast is turned on both the outside and inside of the shell. At this rate of rotation, a specific pressure of about 52 lb. per sq. in. tends to compress the molten babbitt up to the point of solidification. This action combined with the chilling effect of the air blast produces a dense babbitt structure of about 3-16 in. thickness. About 80 per cent of the babbitt is removed in the subsequent machining operations, but the residue which forms the ultimate bearing is of the highest quality and particularly free from blowholes and but a minute fraction of the production is thrown out due to defective bonding.

In the next operation, the babbitt lining is bored in a Warner and Swasey No. 2 machine, which is equipped with a Barker chuck and roughing and finishing bars at

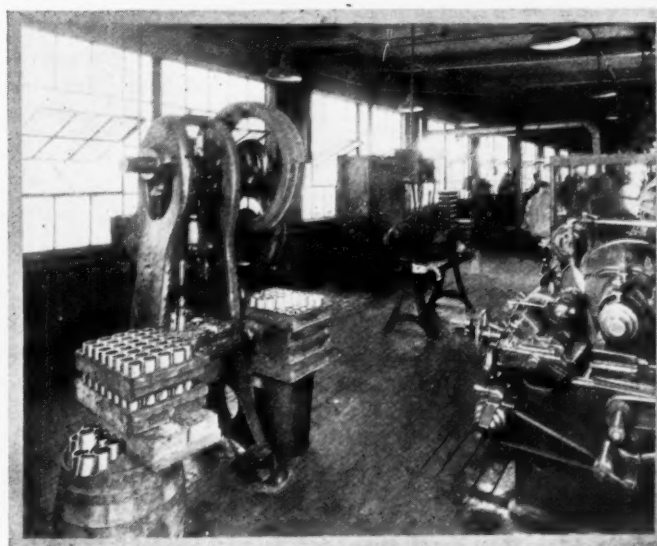


Fig. 5—Norton grinder for finishing outside of shells with press showing grinding arbor fitted with burnishing rings to prevent scoring

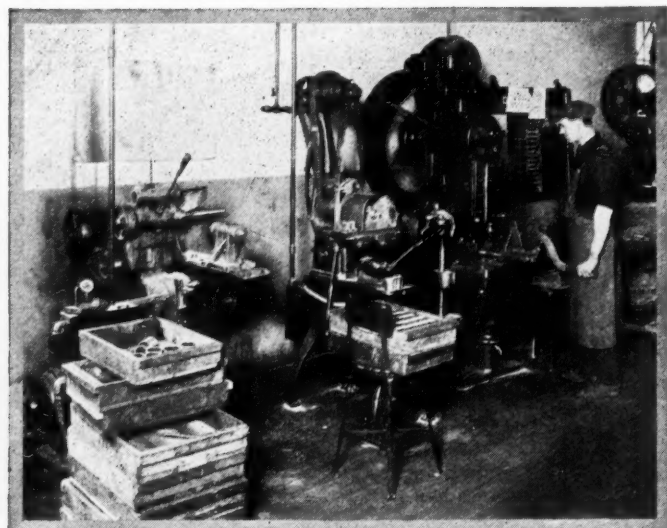


Fig. 6—Bliss press equipped for swaging shells into true contour. At left, splitting equipment. In center, chamfering equipment

the turret. Limits for this operation are 2.144-2.146 in., the speed is 760 r.p.m. and the feed is .048 in. per rev. Automatic stops bring the carriage to a halt at the end of the boring cut. Consequently the same operator also handles the broaching operation which follows, the arrangement of the machines being shown in Fig. 4.

A push broach which measures 2.140 in. diam. at the pilot, 2.146 in. at the first and 2.1625 in. at the last of 12 cutting lands is driven through in a Bliss No. 303½ press. Three burnishing lands which measure 2.163 in. follow the last cutting land. Many of the cutting lands are notched in order to break up the chips. As the ram forces the broach down through the bed, it is caught by a spring operated table which returns the upper end of the broach to a point above the level of the bed and therefore facilitates operations. The broaching operation produces the final finished bearing surface.

Following this operation, the blanks for the rear and center bearings are separated in a Warner and Swasey No. 2 machine which is equipped with a circular cutter at the back of the cross slide. This machine is shown in the rear of Fig. 5. Next, the outside of the shell is finish turned preparatory to the grinding operation. Another Reed-Prentice lathe with a back arm attachment is used for this work. Shells are held in an air chuck and back arm equipment similar to that of the second operation is used for facing and chamfering the inner edges of the ends. Outside diameter is held to 2.553-2.555 in. and the length to 2.202-2.203 in.

Grinder with Full Width Wheel

Finish grinding is performed in a Norton grinder which is equipped with a full width wheel. At this point the dimensions are controlled by the thickness of the shell rather than by diameters, and this method holds good for the balance of the operations. Feed-in grinding is used to bring the thickness to 0.190-0.1902 in. As shown in Fig. 5, a Ferracute press is used for loading and unloading the grinding arbors. To prevent scoring the arbors are formed with two burnishing rings which are 0.0001 in. larger than the previous size of the bore of the bearing.

As both the inner and outer surfaces of the bearing are in their finished condition, the shells are ready for splitting, final forming and the subsequent incidental operations. Splitting is done in a U. S. hand mill carrying a 0.038 in. slitting saw, as shown at the left of Fig. 6. The shell is clamped in the back end of the fixture shown and

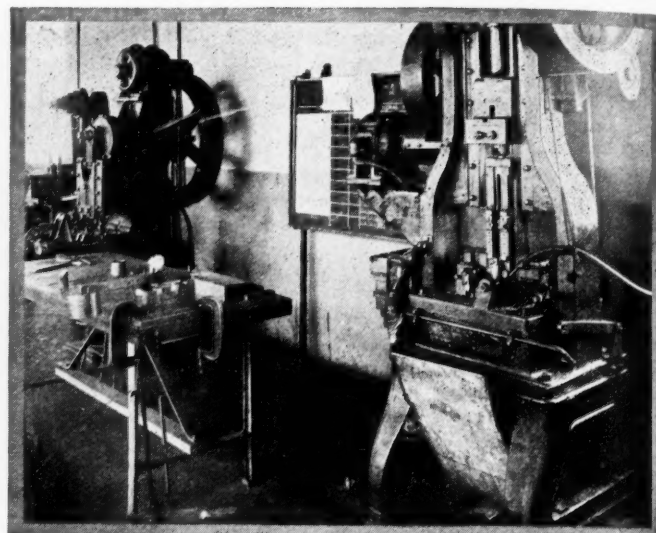


Fig. 7—Press set-up for broaching shim faces of each shell. At left, gaging fixture which amplifies by measuring around periphery

stops are arranged on the column to permit operation at two levels. In the lower position of the table, a cut is taken across the top of the shell. Then the table is elevated by another hand lever and a cut is taken across the bottom of the shell.

In order to prevent "running" of the saw, which would make a crooked split line, it has been found necessary to have the saw teeth cut from the outside toward the center rather than the usual method, which is the reverse. Therefore the upper cut is made from the back end while the lower cut starts at the front end, as shown in the illustration.

As split in the last operation, the half bearings are somewhat larger than the crankshaft size. Sizing is done in the succeeding swaging operation, as shown at the right of Fig. 6. A Bliss No. 3-A press is fitted with a toggle acting fixture which forces the shell into the true contour required in the engine and this shape is fixed by a blow from a semicircular shoe on the ram. The toggle action develops a pressure of 3½ tons and the action of the vertical blow produces an endwise compression of 0.006-0.007 in. Contour is checked by a half ring gage and prussian blue and the straightness of the shell at the back is checked by a flat on the back of the ring gage. Inspection for these qualities is practically 100 per cent.

After the shells are brought to true contour, the inner and outer edges of both ends are chamfered slightly in a Garvin hand mill which is shown in the middle of Fig. 6. A saddle fixture which fits the outside of the shell is bolted to the table of the machine and fitted with a stop strip which restrains the shell from rotating with the cutter. A cylindrical head on the spindle carries a V-shaped cutter which chamfers outer and inner edges simultaneously. The operator pushes the shell against the cutter head, the flat face of which acts as the stop.

As the outer and inner surfaces were finished before forming, some excess metal is left at the split line, the swedging operation affecting contour only. This metal is removed in an unusual application of a punch press which is fitted with face broaches, as shown in Fig. 7. Ways incorporated in the fixture mounted on the base of the machine guide a slide which is actuated by the ram. On this slide, face broaches are mounted in conjunction with a wedge adjustment. Above the broaches, two adjustable blades are secured by screws and serve to break the outer corners following the broaching cut. A toggle clamping arrangement holds the shell during the operation. This

operation is held to very close limits and it has been found necessary to run the machine idle for several minutes before taking any cuts when starting work in the morning.

The inspection fixture which is shown at the left is as interesting as the machine application. Instead of measuring from the back to the split line directly, the measurement is made around the periphery of the shell and therefore is amplified more than three times. The shell is placed in the saddle shown and pulled up against a stop strip at the left by the treadle and the dial gage is applied to the free edge. Limits on the broaching operation are held to 0.0003 in.

At this stage the bearings are full sized and require only the incidental operations for the annular and longitudinal oil grooves and dowel and oil holes. The rectangular section groove which acts as the supply groove in the oiling

system is cut by a milling cutter of correct width and of the same diameter as the annulus in the bearings, the work being done in a Superior hand mill. Longitudinal grooves which are practically semicircular in section are milled with a narrow cutter in another U. S. hand mill. A Leland & Gifford sensitive drill is used for the dowel and oil holes. All of the last three operations are entirely conventional.

Following the machine work, all bearings are given 100 per cent inspection for contour, straightness and wall thickness. Bonding between the bronze back and the babbitt lining is checked by ringing each bearing. A good bond gives a clear, true tone, while a small defect in the bonding will be discerned by a flat tone in which the pitch tends to vary.

Free Pump Installations Nearly Ruin French Gasoline Imports

IN four years gasoline pump stations have practically driven the old-time gasoline can off the French market. Possibly 95 per cent of the gas sold in France at the present time is handled from bulk storage through measuring pumps.

This change has been brought about by the gasoline importers who, soon after the war, decided to substitute underground tanks for cans. Such keen competition set up between the various importers that they have suffered considerably in the change.

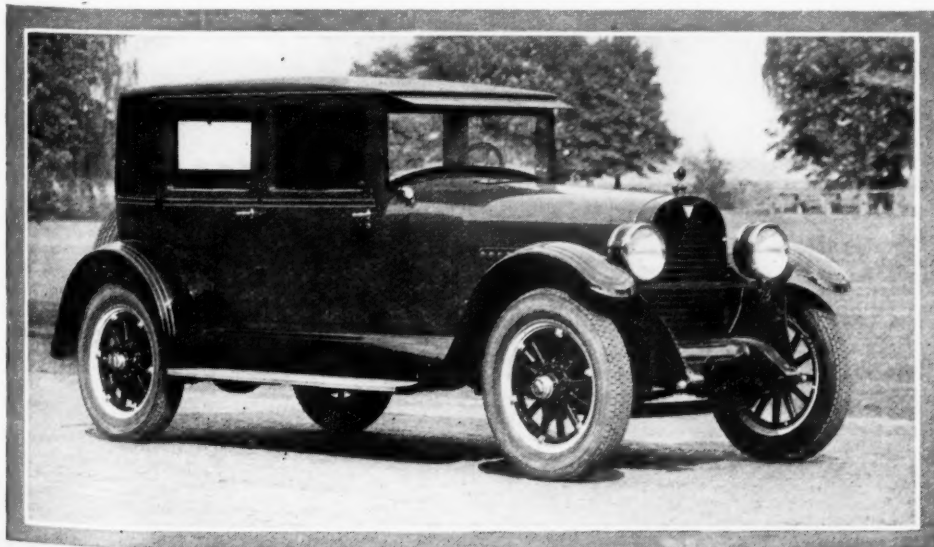
Competing against one another, the gasoline companies in nearly all cases installed the tanks and measuring pumps free of cost, with the understanding that the retailer should purchase all his gas from them, and that the pump should become his own property after a minimum amount of gas had been sold. Pushed by competition, pump stations were installed in villages where the sale was very low, some dealers claimed and maintained an indemnity for having pumps installed on their premises, and the contract obliging the retailer to purchase all gas from the firm having furnished the pump could never be completely enforced. The remedy of taking out the

tank in case the contract was broken was too costly to be applied.

Last year all the gasoline companies had to increase their capital very considerably to cover the immense sums tied up in pump installations. It was realized a few months ago that the competition had become ruinous, and an agreement was arrived at to supply no more plants free of cost unless the sales prospects were sufficient to justify it. As a consequence orders for gasoline pumps, which are nearly all of American construction, practically ceased last fall.

Two grades of gas, known respectively as "tourisme" and "poids lourds" are being retailed in France. There being no standard densities, it is impossible to determine what constitutes light and what is heavy gas, and as a consequence the authorities have no power to take action against dealers who mix the two grades of gas or who sell heavy gas under the designation of high grade gas. The automobile clubs are asking for government gasoline standards to put a stop to this abuse. Up to the present the gasoline companies, even when running their own retail stations, refuse to guarantee the density of the gas they sell.

Hudson's New Four-Door, Four-Passenger Brougham



THIS is the latest addition to the Hudson line—a four-passenger brougham of the four-door close-coupled type selling at \$1,595, or \$345 more than the coach. Aluminum is employed in the body panels with the rear quarter sections done in leather

New Armstrong-Siddeley "30" Engine Has Detachable Heads

Single block also used for all six cylinders. Stroke and bore remain the same, but 30 per cent more power is claimed due to alterations in valves and other changes.

By M. W. Bourdon

INTRODUCED by one of the most prominent among British motor manufacturers, Armstrong Siddeley Motors, Ltd., Coventry, as the first post-war model in 1919, the 30 hp. Armstrong Siddeley Six since has remained practically unchanged in the design of its engine, transmission and chassis.

But it is now being supplied with an entirely redesigned engine, though the bore and stroke remain as hitherto. The remainder of the chassis is still unaltered, apart from the adoption of a new clutch and from the fact that Perrot type front brakes are now standard instead of an optional extra.

The chassis price, however, has been increased from £700 to £800 and that of the seven-seated open car from £950 to £1050. The inclosed limousine is £1350.

The original engine had two blocks of three cylinders with integral heads and pushrod-operated overhead valves, an arrangement that necessitated the removal of the cylinder blocks for valve grinding and carbon removal, even though the cylinder head water jacket was detachable. The pushrods ran up through individual tubes and a series of separate covers was provided for the rockers and valve gear.

In the new engine the most obvious changes are the use

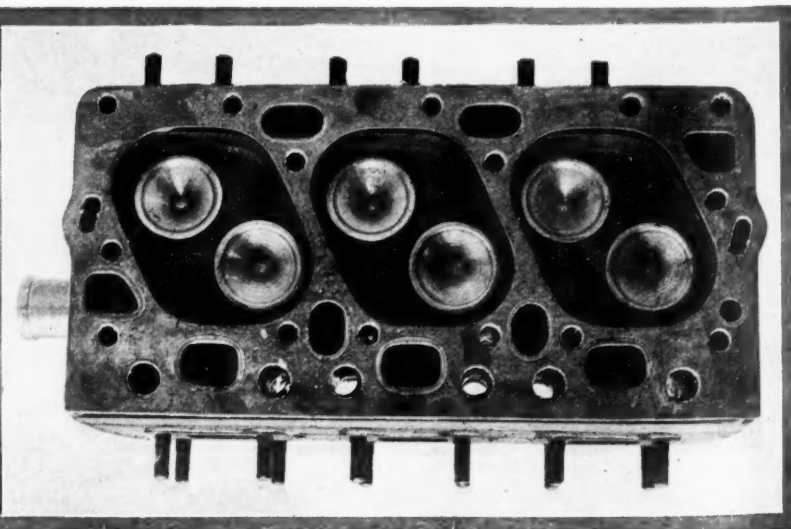
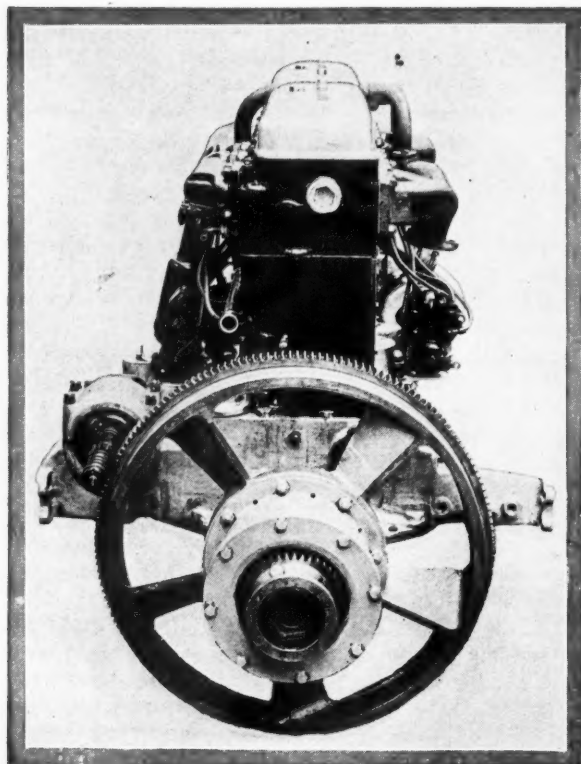
of a single block for the six cylinders and detachable heads, each covering three cylinders. The pushrods now pass up through chambers integral with block and heads, the latter being surmounted by the usual aluminum covers.

The valves are staggered as to their seatings in the heads, and have their stems inclined to permit the upper ends to be in line and operable by rockers mounted on one rocker shaft. The combustion chamber is approximately rhomboidal in shape with a slightly convex top; larger valves are thus provided for.

Forced Lubrication Used

Forced lubrication is carried to the rocker shaft and through the rockers to the pushrod ends. Compound valve springs are used. The valve guides are bevelled at the upper ends of their bores to collect oil, but are grooved and drilled radially lower down to allow surplus oil to escape.

Aluminum pistons of a peculiar design are used. These have the crown attached directly to the wrist pin bosses by interior struts, the crown carrying three compression rings. Below the latter, but above the wrist pin bosses, the piston (of the straight-sided type in general appearance) has a slot of saw-cut width that would make the



Rear view of the new Armstrong-Siddeley engine. Above—Under side of a cylinder head, showing the peculiar shape of the combustion chambers and the staggered valve heads. The valve stems are in line with all the rockers mounted on the same central shaft

crown and the skirt separate units but for the interior struts. From the circumferential slot are two others, diametrically opposed, running down to the bottom of the skirt at a slight angle. The idea is to prevent the heat of the crown portion from being conveyed directly to the skirt, enabling the latter to be a close fit in the cylinder bore without fear of expansion causing seizure and yet preventing piston slap.

Tubular connecting rods are used, machined all over. Pressure lubrication up to the wrist pins is a continued feature, and the same applies to the three-bearing crankshaft. Considerable variations have been made in the induction system, though, as before, a dual type Claudel carbureter is used, with separate jet and mixing chambers and one float chamber.

It is claimed that by reason of the alterations in valve size, combustion chamber, valve ports, induction tract and pistons, the engine develops 30 per cent more power than the original, despite the piston displacement and normal speed being the same. The bore and stroke, it may be recalled, are $3\frac{1}{2} \times 5\frac{1}{4}$ in.

The arrangement of the starting motor and generator

has been modified, but otherwise the engine accessories are as before. A new dry multi-plate clutch has been adopted, however, with six driving and seven driven plates, serrated to engage with the clutch housing and floating hub that forms the casing of the front universal clutch shaft. A five-armed flywheel is used, with vaned spokes to displace a radiator fan and a light rim of large diameter.

It may be remembered that this model Armstrong-Siddeley has a Marmon-like frame, the running boards, valances and parts of the fenders being integral with the side members. Like other models of this make (14 hp. Four and 18 hp. Six), the three-speed gearset is assembled as a unit with the torque tube. Final drive is by spiral bevel, the springs are cantilever at the rear and half-elliptic at the front. The rear wheels (an exclusive disk type) carry wide brake drums of $17\frac{1}{2}$ in. diameter with two pairs of expanding shoes side by side. With front brakes as standard, the pedal operates four sets of shoes and the lever the second pair at the rear.

High pressure tires (895 x 135 m.m. Dunlops) are standard and no offer to fit balloons is published.

S. A. E. Announces Proposed Motorcoach Specifications

THE following specifications for motorcoaches, or buses, applicable only to the single deck city type, have been tentatively put forward by the Motorcoach Division of the S. A. E. Standards Committee:

Width of Door.—The entrance and exit door of motorcoaches shall have a minimum clear width of 24 in.

Emergency Door.—Motorcoaches shall be provided with an emergency door located at the rear of the left side or in the center of the back. The door shall have a minimum clear width of 18 in. and extend from the floor to the upper belt-panel

Panel.—The construction of the front end of motorcoach bodies shall be such as to afford the driver an unobstructed vision to the right and left. The construction of the window at the left of the driver shall be such that it may be readily opened for hand-signaling purposes

Handles.—Rails or grab-handles must be located inside the vestibule and shall be securely fastened

Ventilators.—Motorcoaches shall be equipped with ventilators of a suitable type to assure proper ventilation.

Heating.—An adequate heating system shall be installed when required

Gasoline Tanks.—When the gasoline tank is installed inside of the body, it shall be filled and vented from the outside of the body and shall be completely inclosed inside the body to separate it from the passenger space.

Mirrors.—All motorcoaches shall be provided with an inside mirror.

Footboards.—The front footboards shall be constructed of fireproof material

Fire Extinguisher.—All motorcoaches shall be equipped with at least one fire extinguisher, which shall be maintained in proper condition and exposed to view at all times

Inside Lights.—The interior lighting shall be at least 5 rated cp. per seat passenger capacity

Wiring.—The minimum size of wire from the battery and the generator to the point of lighting distribution shall be No. 8 A.w.g. stranded. For the interior distribution system of lighting, two lamp circuits in parallel are recommended, for which the minimum size of wire shall be No. 12 A.w.g. stranded, or the

equivalent. When more than two lamp circuits are used, the minimum wire-size shall be No. 14 A.w.g. stranded, or the equivalent. All terminal connections shall be soldered and all splices shall be soldered and taped

Passenger Signal System.—Suitable signaling devices shall be installed within easy reach of all passengers

Stop-Lights.—All motorcoaches shall be equipped with a stop-light

Destination and Route Signs.—A route sign shall be located over the windshield on all motorcoaches and so placed and illuminated that it may be read day or night from at least 70 ft. ahead of the vehicle. It must not interfere with the driver's vision or produce an annoying glare

Overhang of Body.—The maximum rear overhang of the motorcoach body beyond the center line of the rear axle shall be $\frac{7}{24}$ of the overall length of the chassis

Height of Chassis Frame.—The maximum height of the frame, measured from the ground level to the top of the frame, without payload, shall be 35 in.

Brakes.—Motorcoaches equipped with only one set of wheel brakes shall have two distinct methods of operating them

Wheel-Housing.—The construction of rear wheel-housings shall be such that no damage can result from bursting tires. The construction of the fenders shall be such that no undue accumulation of dirt or foreign matter can be deposited on the body

Exhaust.—The arrangement of the exhaust piping shall be such that the passengers will be adequately protected from the exhaust gases.

WHEN lumber dries, the surface becomes dry first but cannot shrink fully because the center does not shrink until later. The surface layers of the lumber therefore become set in an expanded condition and when the center of the lumber does become dry and tries to shrink fully, stresses are set up. Casehardening can be relieved by giving the lumber a conditioning treatment at temperatures of 160 deg. Fahr. or higher, and at relative humidities which will iron out the difference in moisture content between the center and the surface of each board.

Revival of British Duties Unlikely to Hurt U. S. Exports

Figures show that more American automobiles entered England when McKenna Tariff previously was in force than went in after it was lifted.

REIMPOSITION of the McKenna duties should not affect materially American automobile sales to Great Britain if past experience is any guide to the future. Comparison of imports into Great Britain of cars, trucks and chassis from United States and Canada for the last seven months during which the McKenna duties were in force and the first seven months of the free period show that 8750 units, exclusive of trucks, were imported while duty was on and only 6310 when shipments were duty-free.

Here is the record:

Imports from	Jan.-July, 1924	Aug., 1924-Feb., 1925
U. S. & Canada	(Duty Period)	(Free Period)
Cars	4306	4372
Chassis	4444	1938
Trucks	353	13

This doesn't indicate that American manufacturers are going to be affected very materially by the duties when they go into force again. It is a bit startling, as a matter of fact, to note that American manufacturers imported into Great Britain 2440 more cars and chassis during the seven months in which duty was charged than in the following seven when such shipments were duty-free. Trucks, of course were not included in the McKenna duties.

The difference in the figures can be accounted for to some extent by seasonal buying influences. The January to July period covered, during which duties were in effect, is normally a good buying season, while the duty-free period is not. These seasonal factors might well have exerted stronger influence on the importation curve than did the duties.

French and Italian Exports Grow

While American manufacturers seem to have profited little from the free period, French and Italian makers took advantage of it to a very great extent.

During the first seven months of 1924 France sent 1956 passenger cars into Britain. For the first three months during which imports were free the previous seven months' average was maintained, probably in anticipation of Olympia. After this a considerable jump upwards was made to a total of 3797 cars for the seven months ending February, 1925. The ratio of French cars imported into Britain during the two periods under review was 34 to 66.

Still more striking was the advance made by Italy. During the January-July, 1924, period 673 Italian cars entered Britain against 2561 during the second seven months, the ratio per 100 cars imported for the entire period being 21 to 79. The peak month was in October, this high spot no doubt being reached because the leading manufacturer had just previously announced very

substantial price reductions in this market.

Consideration of the aggregate of imports from North America during the entire period under review brings the conclusion that United States

manufacturers did, after all, gain very little as a result of the abrogation of the McKenna duties. Of the total number (8678) passenger cars imported into Britain from North America during these 14 months, 4306 came over in the first seven months and 4372 during the following period.

The figures show conclusively, however, that the balance of imports from North America will again veer toward this country by way of Canada rather than directly from the United States. Direct imports of passenger cars from the United States during the first seven months increased from 1592 to 3555 in the second period, the ratio being 31 to 69. From Canada the number of cars dropped from 2714 in the first period to 817 in the second seven months, the ratio falling from 77 to 23.

Looking at the subject from the standpoint of price per unit imported, a general all-round increase in price is shown. The average price of each French car imported during the last seven months of the first McKenna régime was £131, against £170 for the duty-free period. The unit price of Italian cars rose from £215 to £228; of American, from £186 to £230, and of Canadian, from £180 to £210. The reimposition of the duties probably will mean that the average price of imported cars will fall once more toward the price prevalent during the first half of last year.

Despite the open door, the volume of chassis imported fell in the second period as against the previous seven months. The aggregate for the whole period was 14,147 units, 7699 arriving in the first seven months and 6448 in the succeeding period. France shows an increase from 2281 to 3096, the ratio of increase from 42 to 58 being almost equivalent to that of Italy, which sent 974 chassis in the first seven months and 1414 in the following period.

A very considerable drop in the imports of chassis is shown both by the United States and Canada. American manufacturers sent 2467 chassis direct to this country in the first seven months against only 1439 during the second

WITH the announcement a short time ago that the McKenna duties on imports into Great Britain were to be revived, speculation developed as to what the effect would be on America's trade with the Isles.

If the experience of the past is repeated, the effect will be nil insofar as the automotive industry is concerned.

This article gives figures which show that the United States and Canada actually exported more passenger cars and chassis to England during the last seven months that the duties previously were in force than they did during the first seven months after the imposts were lifted.

There are other figures in the article that will be of interest to the car builders on this side.

seven months, while the Canadian totals were 1977 and 499 respectively.

The prices of imported chassis also showed an all-round increase. The average chassis imported from France cost £125 in the first period as against £138 in the second; Italian increased from £172 to £191; American from £128 to £153, and Canadian from £97 to £106.

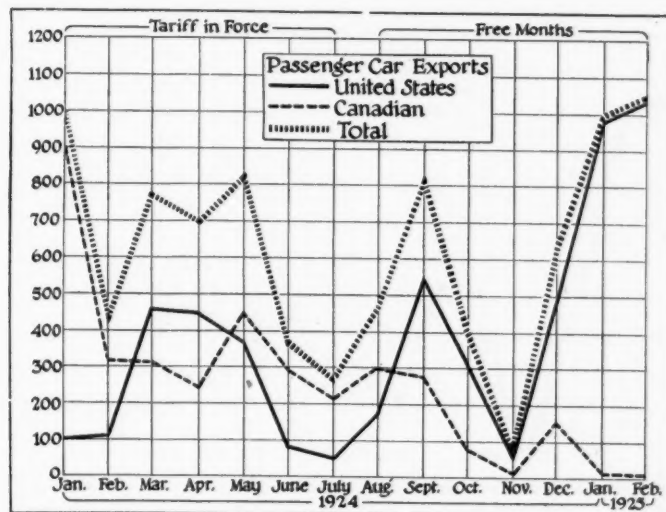
The figures dealing with commercial vehicles, which have always entered this country free of duty, seem to indicate that Britain will shortly become entirely self-supporting in this respect. Certainly, if the figures about to be quoted were to be seriously considered both by the political parties and the trading community in this country very little more would be heard about bringing trucks and buses within the scope of the new tariff.

During the first seven months France sent 218 commercial vehicles to Britain; Italy, 65; U. S. A., 126, and Canada, 227. During the second seven months these figures fell to 128 in the case of France, 38 in the case of Italy, and but 11 and 2 respectively in the case of the United States and Canada. The unit value of French commercial vehicles imported fell from £174 to £170; but Italy shows an increase from £103 to £160; U. S. A., from £203 to £220, and Canada from £72 to £379.

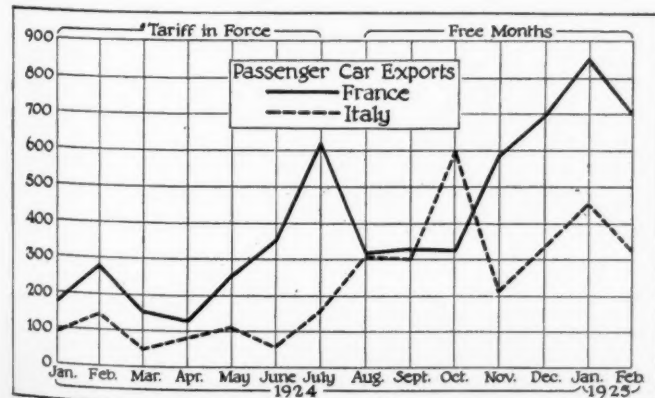
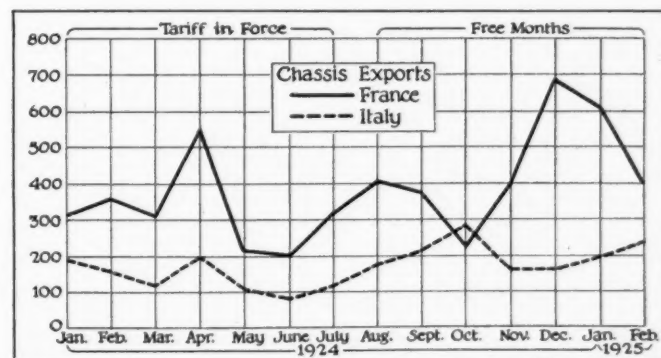
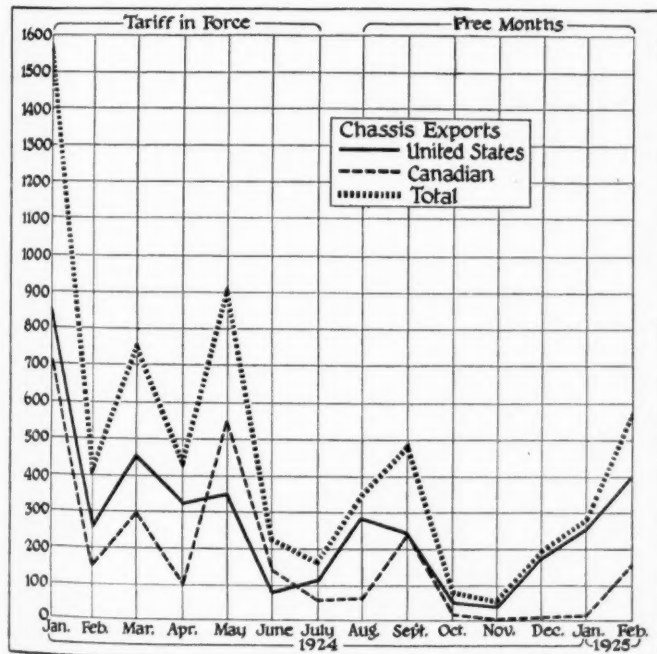
The Vauxhall lead in price reduction has been followed by Daimler-B.S.A., Ariel and Crossley, the reason given being that the abolition of the duties is encouraging increased production. If, however, the increased price of tires is followed by an increase in the cost of other automotive materials, price tendencies will veer upward.

One is almost inclined to predict that those American manufacturers who have plants in Canada will stand to benefit when the meaning of the reimposition of the McKenna duties is looked at from its broadest aspect.

In many parts of the British Empire discontent was expressed at the shelving of the Imperial Preference by the Labor Party. The figures quoted above show conclusively that the great bulk of American exports can be sent out by way of Canada to those parts of the Empire where preference is given, and it may be regarded as certain that throughout the Empire generally a sympathetic movement will be made on the line that has once more been taken by the Mother Country.



The accompanying charts are used to show the fluctuations in the imports of passenger cars and chassis into Great Britain from the United States and Canada and from Italy and France during the last seven months that the McKenna duties were previously in force, and the first seven months after they were lifted. It will be seen that the U. S. and Canadian exports varied little after the duties ceased, while there was a perceptible increase in the exports from France and Italy.



IN connection with the investigation of the properties of molding sand, made by the Bureau of Standards, the moisture of sands used in the bureau's foundry, as well as temperatures of molten metals during pouring, were recorded daily during the past month, temperature being measured by means of an optical pyrometer. The moistures determined varied from 6.89 to 7.96 per cent for Albany 00 sand, and from 8.38 to 9.94 per cent for Lumberton sand, while temperatures observed were within 1018 and 1170 deg. C. (1864 and 2138 deg. F.) for bronzes and within 1226 and 1388 deg. C. (2238 and 2530 deg. F.) for cast iron.

Just Among Ourselves

Army Buying and Standardization

THE announcement that the Army is going to buy a number of 5-passenger automobiles—the first automotive equipment it has purchased since the war—brings to mind some thoughts about standardization. There was considerable lack of standardization of the motor equipment bought for Army use during the war. It is said that in the First Army in France there were 34 different makes of 3-ton trucks, purchased from three different countries. With two different systems of screw threads to contend with, and with some 3500 spare parts entering into the makeup of the average truck, it is easy to see that the service problem was not an easy one. Probably none of the officers who were directly associated with the situation in France ever will need to read dissertations about standardization to convince them of its benefits. Buying practices which might have been justified during the war on the grounds of hurry and the need for immediate delivery would have no place in peace-time purchasing. Through its own buying methods the Government has an excellent opportunity to show how the benefits of standardization can be realized in practice. It will be interesting to analyze the present purchases from the service standpoint.

Crime, Automobiles, Drugs and Pistols

SOMEBODY'S always tying up automobiles and revolvers in some unpleasant allusion about crime waves. Chief City Justice William McAdoo of New York, who has so ably served the cause of traffic betterment, is the latest to link the motor vehicle with

pistols and drugs as a great contributor to crime. He does give the palm to revolvers as crime generators, which is something. It seems necessary to point out for the 11,000,000th time that automobiles, while they undoubtedly have aided many criminals in the performance of their chosen profession, are not in themselves the cause of crime in any sense. It might be proved that drugs, by the influence they may have on the human mind, so warp it in certain instances as to cause it to direct the body to criminal activities. One could scarcely claim any such effect as a result of riding in an automobile. Every scientific advance in the world is an aid to crime, if applied to that purpose by a skilful criminal. The automobile has performed an infinite amount of good for humanity. The cases in which it has been put to illegitimate use are insignificant when compared to the benefits which have been derived from it. By no process of logical reasoning can it be proved that the automobile is a cause of crime.

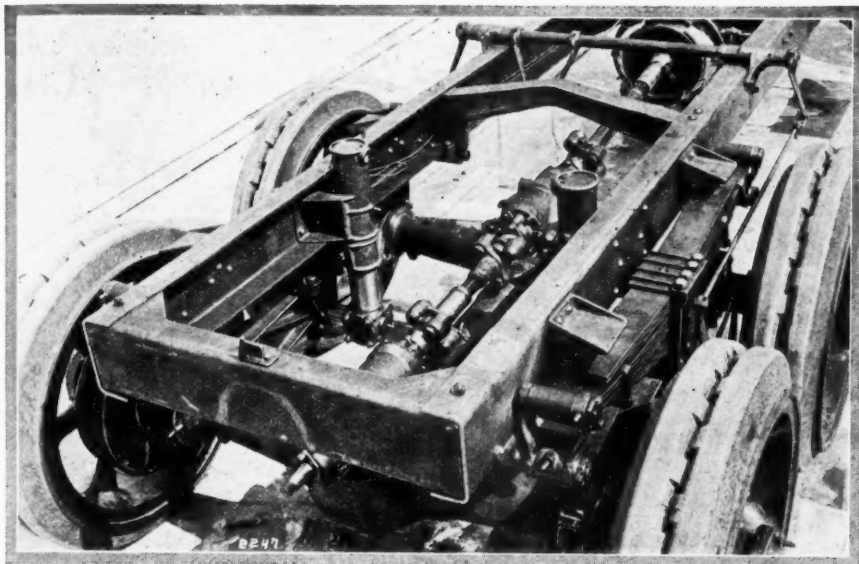
Erskine Believes in Rebates on Price Cuts

A. R. ERSKINE, Studebaker's president, has some very definite ideas about allowing rebates to dealers when car prices are cut. "We believe," he writes us, "that whenever manufacturers establish prices, or, in other words, retail prices, by widely advertising them throughout the country, dealers are thereby precluded from charging higher prices, and the moral obligation rests upon the manufacturers to protect the dealers in such cases. It is not a legal obligation, but it is good business and is for the best interests of both the manufacturer and his dealers.

... Studebaker has established a precedent in this matter and its action had a far reaching effect, as almost all manufacturers in the industry afterwards adopted the plan and incorporated the guarantee in their dealers' agreements." Some executive may argue, of course, that, since the dealer gets a benefit when prices are raised, he isn't entitled to full protection when they are dropped. It's hard to get the dealer to feel that way about it, though, and a lot of companies agree with Mr. Erskine that it's good business to rebate. We brought up this discussion first on this page about three weeks ago, and Mr. Erskine's letter is one result of our request for comments. We'd like to have more.

Expansion of Plants Continues in 1925

WE'VE been watching with interest the expansion plans of some of the car manufacturers, not only because of their significance as related to the particular company but because of their possible influence on the industry as a whole. Despite record-breaking production in the last two months, total output for the year seems likely to go ahead of 1924 by only 150,000 or so. At the end of 1924 it was estimated that the industry had capacity to build some 5,650,000 vehicles if necessary. Expansions haven't been numerous this year but several additions have been made and others are planned. As closely as we can estimate, capacity this year has been increased so far by something like 200,000 to 225,000. The expansions indicate, of course, expectation on the part of certain companies that they will increase their business despite the fact that capacity exceeds demand for the industry as a whole. N. G. S.



Rear end of Moreland six-wheel truck chassis, showing vertical thrust rods

New Type of High Speed Six-Wheel Truck Is Built by Moreland

A NEW type of six-wheel commercial vehicle, a 5-6 ton fast freight truck, has made its appearance on the Pacific Coast, the manufacturer being the Moreland Motor Truck Co., Los Angeles. Either a four- or a six-cylinder engine is fitted, according to the purpose for which the chassis is intended.

The total weight with a six-ton load is less than 24,000 lb. and the truck can be geared for a sustained speed of 35 m.p.h., it is said. Driving and braking is effected through the four rear wheels, and in addition to the brakes on the wheels there is a substantial emergency brake on the propeller shaft.

One of the special features developed by the engineers of the company is the cylindrical vertical thrust rod, which also performs the functions of a radius rod. The lower ends of the vertical members are connected with the horizontal members through a ball and socket joint. This is shown in the photograph of the rear end of the chassis. The horizontal member is a solid stud rigidly attached to the axle connector.

The two axles are connected by the axle connectors,

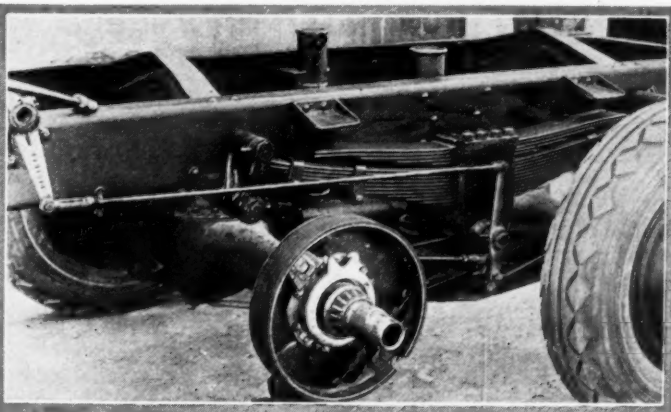
with spherical joints on the axle housings. The ball part of the axle housing is surrounded by a bronze socket which is clamped onto it by the axle connector. A torque rod is fitted at the center, which interconnects the axle housings through a type of universal joint. All these parts, including the axle housings, are steel castings which are made at the foundry of the Moreland plant. The worm and worm wheel, as well as the differential gears, are of Timken make.

The frame channels are $8\frac{1}{8}$ in. high, $3\frac{5}{16}$ in. wide, and are made of $\frac{5}{16}$ in. stock. One of the features of this six-wheel truck, as well as of the heavier Moreland models, is a transmission giving five speeds forward and one reverse, all operated by a single lever. This transmission is made complete in the Moreland plant.

The Moreland plant, while not manufacturing its own engines, makes most of the other parts of its trucks. It comprises a foundry equipped with both cupolas and electric steel furnaces, a carbonizing and heat-treating department, a body plant, a frame manufacturing department, a drop forging department and a pattern shop.



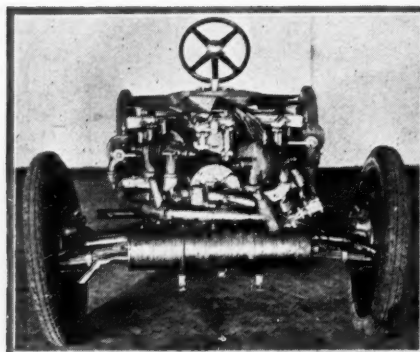
Housings of the two rear axles connected by axle connectors and torque rod



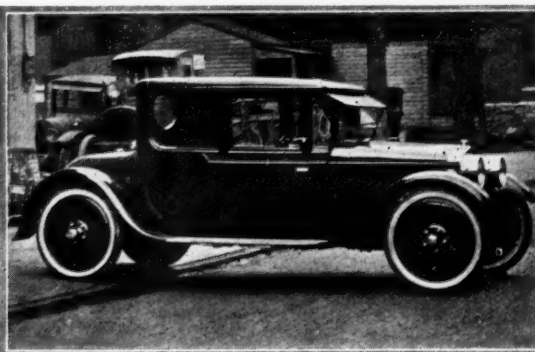
Side view of rear part of chassis showing jack spring and part of brake mechanism

Car Is Built with Engine of Fixed Radial Type Mounted at Rear of Chassis

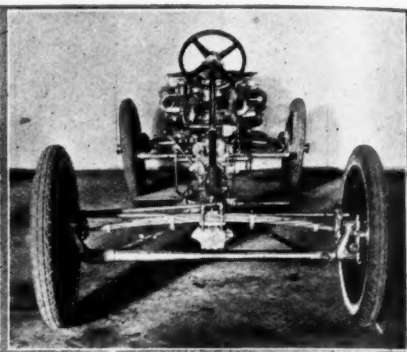
Drives through combined planetary and sliding gear to a flexible rear axle of which the central part is carried on the rear spring.



Rear view of Julian chassis



Julian sport-sedan



Front view of Julian chassis

A CAR with many features differing radically from those of conventional designs has been built by the Julian Brown Development Corp., Syracuse, N. Y.

The engine is a six-cylinder fixed radial air-cooled type mounted at the rear of the chassis; it drives through a combination sliding pinion and planetary type of transmission giving four forward and two reverse speeds. The front axle is a thin-walled, large diameter steel tube. Instead of the conventional frame a tubular steel backbone is used, which has the two half elliptic cross springs secured to it at its ends. A special design of rear axle is used, the halves of which swivel in a vertical plane around pivot supports on the differential housing.

The engine has a bore of $3\frac{3}{8}$ in. and a stroke of 5 in. (268 cu. in.), and with a compression ratio of 4.8 to 1 is said to develop 60 hp. at 2500 r.p.m. The valves, which have a clear diameter of $1\frac{1}{8}$ in. and a lift of $\frac{3}{8}$ in., are arranged horizontally and opposite each other in the cylinder heads. Three rings are carried by each of the cast iron pistons, and these are located at the middle instead of at the top end. A cast aluminum piston pin retainer and oil cooling jacket is held in place by two $\frac{3}{8}$ in. cap-screws. The pistons have a conical head with a central flat spot 1 in. in diameter, and have a clearance of 0.0025 in. at the skirt.

Two Opposed Throws

The crankshaft has two opposed throws and is supported in two main bearings, all of its journals being hardened and ground. Three connecting rods work on each crankpin, one blade and one forked rod being mounted on and concentric with the master rod. The camshaft is supported in a single bearing and carries only two cams; it is mounted above the crankshaft and is driven from the latter through an internal gear and two pinions. The drive for the generator, ignition unit and oil pump is taken from the outside of the camshaft gear through an angular drive.

The conical clutch, lined with asbestos fabric, operates in oil, the film on the clutch surface being maintained by centrifugal force. When the clutch cone is in contact with the flywheel the planetary gears are locked, and a

direct drive is obtained. By pressing the clutch pedal forward it forces the under side of the cone into contact with a stationary cone, thereby causing the planetary pinions to operate, giving a reduction of 2.2 to 1. This reduction is used in combination with either the direct drive or the gear reduction in the sliding gearset. The reduction ratios obtained are 3.46, 5.19, 7.61 and 11.42, this applying to the total reduction between crankshaft and rear wheels.

Rear Axle Shaft Connections

Each of the rear axle shafts is connected through a universal joint to one of the side gears of the differential. The wheel bearings are mounted on tubes which terminate in a ball joint over the universal joint, which is fastened to the housing of the powerplant and differential. The brake drums are inside the disk wheels and are 16 in. in diameter by $3\frac{1}{2}$ in. wide. There are four brake shoes inside each drum, the upper and lower together forming the emergency brake (operated by lever) and the forward and rear the service brake.

The front axle has a tubular center $2\frac{1}{4}$ in. in diameter by $\frac{1}{16}$ in. wall thickness. The cross spring is connected to the axle end forgings close to the knuckle pins, the axes of which when produced strike the ground at the center point of tire contact. The front wheels can be deflected to an angle of 47 deg., which permits of turning in a 15 ft. radius, the wheelbase being 125 in.

There are three major parts to the tubular frame. The backbone consists of a $4\frac{1}{2}$ in. tube and this has two 2-in. cross tubes pressed into it to support the body. The two transverse tubes are mounted on opposite ends of the main tube. Whereas the front spring is shackled at one end and pivoted at the other, the rear spring is pivoted at both ends, shackling being made unnecessary by the fact that the spring ends swing on the same radius as the axle ends. The ends of the rear spring are flat and rest between two oval blocks of celeron.

The chassis has been fitted with a body designed by Fleetwood, of the sport coupe type. An outstanding feature of the vehicle is its low build. The floor is only 16 in. from the ground, although the minimum road clearance

is 11¼ in., or more than on the average passenger car.

Among the advantages claimed for this construction are improved riding qualities, due to the reduction of unsprung weight; to the placing of the seats between axles instead of over the rear axle, and to the attachment of the springs to the center instead of to the sides; reduced pitching and swaying, due to lowering of the center of gravity; improved traction, due to the location of two-

thirds of the weight on the rear axle; increased tire mileage, due to reduced slippage of rear tires and reduced weight on front tires; absence of smoke and heat from the engine in the body, due to the rear location of the powerplant; and the ability to turn in a very short radius.

It is claimed that the car could be produced to sell for about \$2,500, but no definite plans for its future have been formed.

New Fire Hazards Developed by Use of Pyroxylin Finishes

At the annual meeting of the National Fire Protection Association a Sub-Committee on Pyroxylin Finishes of the Committee on Manufacturing Risks and Special Hazards presented a report on the hazards involved in the use of these finishes.

The increased use of various enamels, lacquers or finishes having a nitro-cellulose content, properly termed "Pyroxylin Finishes," has created fire hazards, which this report discusses. In the automobile and furniture industries the extensive use of these finishes is new, and it is probable that this development will spread to other industries.

As a rule, the solvents used with pyroxylin finishes are in the alcohol class with low flash point. The total content of the solids includes resins, pigments, flexible oils and nitro-cotton, the percentage of the latter being relatively small.

The hazard is similar to that introduced by the use of paints and varnishes. The most common method of application consists of spraying, and the hazards attendant upon flow coat work, dipping, enameling and baking are therefore absent. As the thinners employed are highly volatile, quick drying is a characteristic of these finishes, hence the hazard in general can be mainly safeguarded by adequate ventilation. Oxidizing oils are not, as a rule, employed, but where such oils are involved the hazard of spontaneous ignition, as in the case of paints and varnishes, is present and should be guarded against.

The dried residue which collects in spray booths and ducts is highly flammable, and once ignited the resulting fire spreads rapidly. The degree of this hazard largely depends upon the design and manner of installation of the ventilating system, operating methods and quality of housekeeping.

Necessary safeguards covering the features of installation and protection are included in the following recommended requirements of the National Fire Protection Association: Regulations governing spray booths, regulations for the installation of blower and exhaust systems,

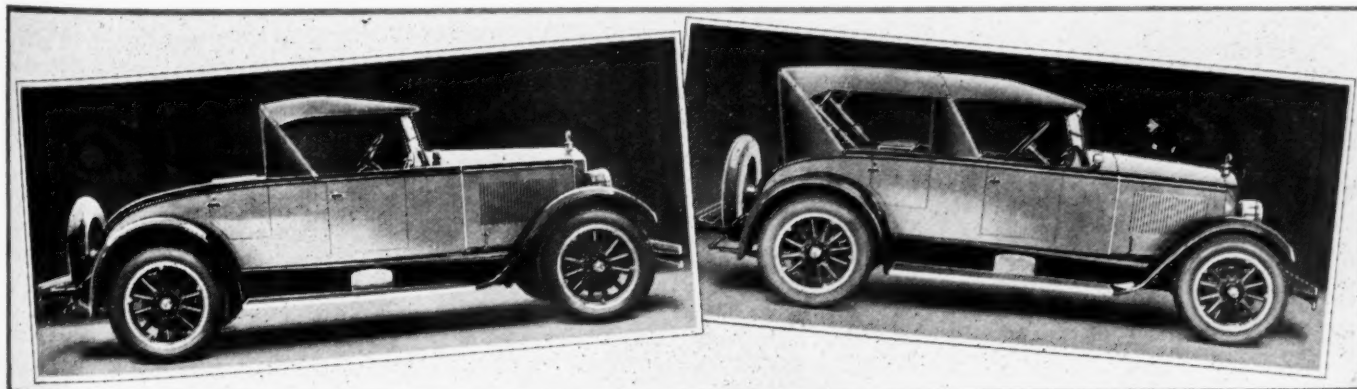
regulations governing the protection of openings in walls and partitions, the national electrical code, and regulations for the installation, maintenance and use of first aid fire appliances.

The Inspection Department having jurisdiction should be consulted before any definite action is taken in connection with the following: The introduction of pyroxylin finishes, relocation of existing equipment or departments, changing of existing equipment, purchase of new equipment, or the storage of pyroxylin finishes and thinners. If timely advice and guidance are secured in connection with the foregoing, unnecessary hazards will be eliminated, and in many instances the necessity of making subsequent expensive changes obviated.

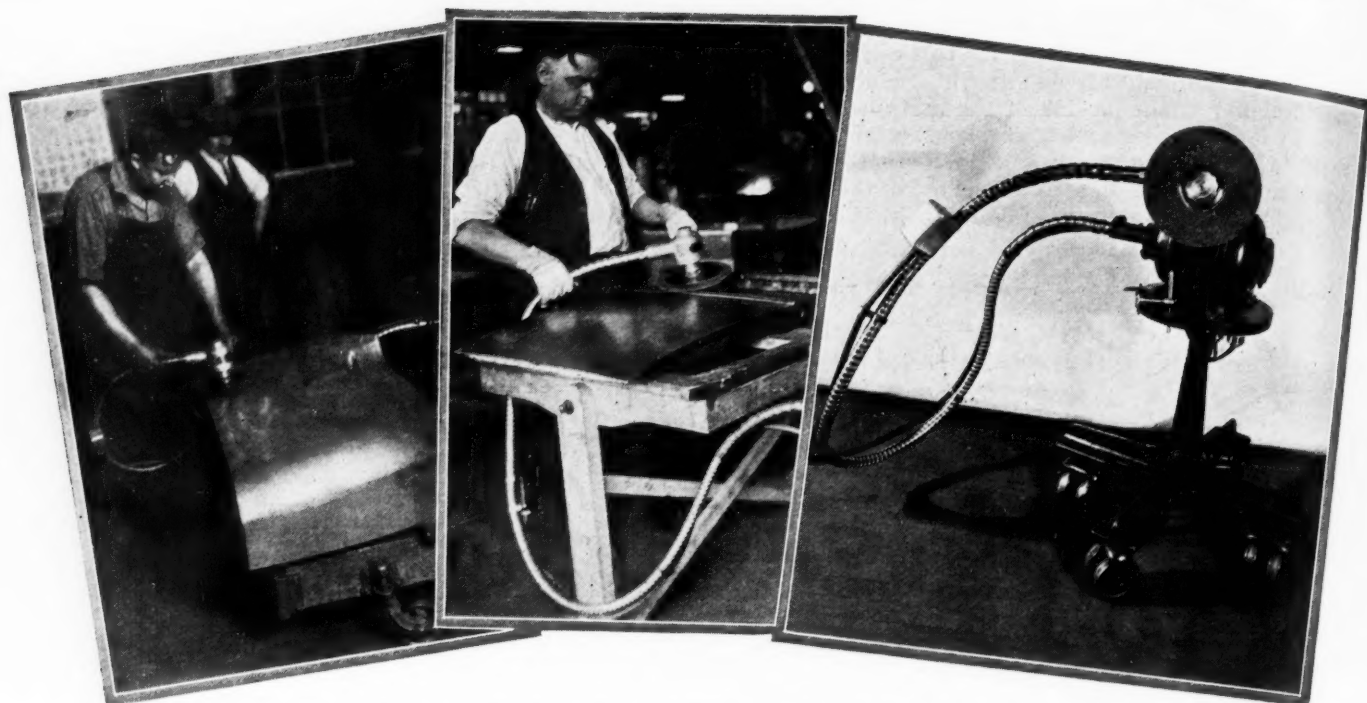
The recommendations made in the report are given under two headings, viz: (1) Use of Pyroxylin finishes in large manufacturing plants and (2) refinishing shops. Under the first heading are covered main supplies, local supplies and mixing rooms, spray booths, spraying, lighting, housekeeping and fire extinguishers.

Roadster Made to Look Like Phaeton

VELIE Motors Corporation, Moline, Ill., recently has placed on the market a new sport roadster which combines a rather novel seating arrangement for extra passengers and at the same time offers complete protection against the weather. An extra door at the side of the car permits easy entrance to the rear compartment and eliminates climbing over the rear fender. From the standpoint of comfort, a top over the rear deck seat is a feature, and both the seat and top may be folded out of sight when the additional passenger accommodations are not required. A choice of two body colors is offered, light tan or gray and a touch of color is added by upholstering the seats in green Spanish leather. The roadster, in addition to four wheel hydraulic brakes and balloon tires, is equipped with a cigar lighter, clock, dash gasoline gauge, automatic windshield wiper and scuff plates.



The new convertible Velie sport roadster



At the right is a view of the new Carborundum sanding machine. Left—Using the machine for finishing a die block. Center—Finishing an automobile door

Portable, Power-Operated Sanding Machine New Carborundum Product

Abrasive disk driven by motor through flexible shaft enables operator to finish concave, convex, flat or curved surfaces.

THE Carborundum Company of Niagara Falls, N. Y., has recently introduced a portable, power-operated sanding machine which facilitates the work of finishing metal products.

The machine grinds the metal with a special abrasive disk driven by a motor through a flexible shaft. The disk is coated with Aloxite grains, a hard, sharp abrasive or grinding material manufactured by The Carborundum Company. The cutting action of the disk leaves a finish described as a very fine scroll without deep scratches—a flat surface that fills evenly with paint where paint is to be applied, eliminating much of the glazing necessary where file marks are present. The machine is easily handled and its operation requires less physical effort than is demanded by the filing process.

The machine is so constructed as to make it possible for the operator to reach his work from almost any angle and because of the flexibility of the abrasive disk itself and adaptability of the working head, the disk will uniformly finish concave, convex or flat surfaces and will grind both wide and narrow surfaces or sharp curves and contours.

One of the principal uses of the machine is the finishing of automobile bodies, die blocks and similar metal products.

Motor Mounted on Pedestal

The motor of the sander is mounted on a rigid cast iron pedestal, 24 in. high, supporting a swivel table providing for a swing of the motor half way around. This feature adds to the adaptability of the unit to any required posi-

tion during continuous grinding operations. The pedestal is supported by four double casters, permitting ease of movement. A holder mounted on the table provides a resting place for the machine head when not in use. A 1 hp. motor is used and a flexible shaft drives the grinder head.

The main castings of the grinding head are of aluminum. The assembly shafts and spindles are of steel, supported in ball bearings. Heat treated, specially tempered, steel mitre gears running in an oil tight chamber packed with grease provide the angular drive from the flexible shaft.

Clearance Between Grains

The disks used on the machine, as previously stated, are coated with Aloxite. The Aloxite grains, uniformly graded, are coated on the disk in such a way as to allow for a free cutting action. There is a clearance between the grains so that every grain will cut. The grains are coated on a strong backing of cloth drills. This cloth back disk then is fixed to a special fiber board disk with a molded countersunk center punched with six pinholes which locate over the pins in the special lock nut which holds the disk securely to the sanding machine head. The disks are furnished in a standard size of 9 1/4 in. in diameter.

Supporting the disk is a flexible and compressible pad, which yields under pressure, thus conforming to the work surfaces. The disks are furnished in grit numbers 16, 24, 30, 36, 46, 60, 80, 120 and 150 depending upon the finish required and the nature of the metal to be finished.

Greater Uniformity in State Motor Laws

(Continued from page 969)

and New York, of the twelve which did not levy a tax on gasoline in 1924, have failed to tap this source of revenue. The question is still pending in the Legislature of Illinois, but was decisively defeated in the other three States. The new States which have this year decided to help finance their highway systems by the levying of such a tax are: Iowa, Kansas, Michigan, Minnesota, Nebraska, Ohio and Wisconsin, where a 2-cent tax has been provided for, and Rhode Island where a 1-cent tax will be imposed. The following States have effected an increase in the present rate of tax in cents per gallon, as follows:

Idaho	from 2	to 3
Indiana	from 2	to 3
Maine	from 1	to 3
Nevada	from 2	to 4
New Mexico.....	from 1	to 3
North Carolina.....	from 3	to 4
Oklahoma	from 2½	to 3
South Carolina.....	from 3	to 5
South Dakota.....	from 2	to 3
Tennessee	from 2	to 3
Utah	from 2½	to 3½
Vermont	from 1	to 2
West Virginia.....	from 2	to 3
Wyoming	from 1	to 2½

Arkansas, Colorado and North Dakota defeated a 1-cent increase while Oregon and Texas killed proposals for an increase of 2 cents and 1½ cent respectively.

Seven States attempted to increase the tax to 5 cents per gallon, but this proposal was defeated in every case with the exception of South Carolina.

Washington was the only State in session not introducing bills relating to taxation of motor vehicle fuels.

Eight New Gasoline Taxes

In summary, eight new gasoline tax laws have been enacted while fourteen States have increased the tax by an average of about 1 1/3 cents per gallon. The reasons given for the great popularity of this law are that it is easily administered, the tax is collected with a comparatively small overhead expense, and the assessment is believed to be fairly distributed.

The statistics show that the revenue collected from this source in 1924, amounting to about \$80,000,000, was more than twice that received in 1923. An even larger increase may be expected in 1925. The new laws generally allow refunds to those using gasoline other than in vehicles operated upon the public highways and direct that the funds shall be devoted to the maintenance and new construction of streets and highways.

Governmental restrictions on size, weight and speed have not met with any considerable change. There has been a slight tendency to decrease the size and weight limitations, but there has been a notable attempt to permit a greater rate of speed. The most drastic weight reduction was enacted in North Carolina applicable to common carriers as already stated in the discussion of that subject. In Ohio there was an unsuccessful attempt to restore the 12-ton limitation, replacing the present 10-ton law.

Wyoming, which formerly had no size restrictions, has adopted the principles of the Motor Vehicle Conference Committee limiting the width to 96 in., height to 12½ ft.,

length to 30 ft. and length of combination to 85 ft. Missouri has also adopted the same regulations with the exception that a combination of vehicles is limited to 60 ft. Pennsylvania has increased the permitted width to 96 in. North Carolina limits buses to 86 in. in width.

The only important changes in weight restrictions not already mentioned in the discussion of common carrier regulations are found in Oregon which has reduced the gross weight from 22,000 lb. to 20,000 lb. and the weight on one axle from 17,600 lb. to 14,400 lb. In Indiana which, formerly limiting trucks to 15,000 lb. capacity, has adopted the principles of the Motor Vehicle Conference Committee providing for a limit of 28,000 lb. gross weight, 22,400 lb. on one axle and 800 lb. per inch width of tire, and in Missouri, where a slight decrease in weight limitation was enacted. The new Colorado law limits trucks to 14 tons gross weight instead of 8 tons' capacity as formerly provided. A bill for a considerable decrease is still pending in Illinois but with little likelihood of success.

Speed Limitations Increased

The following States have increased the speed limitation: Indiana, Iowa, North Carolina, Oregon, Rhode Island, Tennessee and Wyoming. New Jersey defeated a bill which would have increased the maximum speed in built-up sections of towns from 12 miles to 20 miles per hour. Massachusetts, New York, North Dakota and Washington also defeated attempts to increase the allowed speed.

The much mooted question of compelling all owners of automobiles to procure liability insurance has received a great deal of attention during this legislative season. Although this was a comparatively new field for legislation, the calendars were crowded with bills designed to provide parties injured in motor vehicle accidents with greater certainty of indemnity. Some bills would have revoked the licenses of drivers against whom a judgment for damages as a result of such accidents remained unpaid. Others would have created a prior lien against the motor vehicle. Some provided for a State Indemnity Fund or a Pedestrian Protection Fund. The most common form provided that the motor vehicle owner must file a bond or a certificate of insurance or deposit a stated amount of cash or securities. This insurance would indemnify for property damage in the amount of \$1,000 and for injury to persons from \$5,000 to \$10,000.

Many Close Contests

At least two-thirds of the States in session had before them the consideration of such measures. The fight was closely contested in many States, but as the legislatures adjourned it was apparent that the proponents of compulsory insurance were decisively defeated. Those in favor of such legislation were of the opinion that the motor vehicle owner should be compelled to compensate for any damage occasioned by him. The Motor Vehicle Conference Committee and many other national organizations were opposed to these measures on the grounds that there were no facts or statistics in existence which showed the amount of uncompensated losses due to motor vehicle accidents, nor were there any facts at the present time which indicate that such insurance would actually reduce the number of these accidents. For

these and other reasons such legislation was believed to be ill-advised at the present time and many legislative committees were appointed to make a study of this question and report at the next session of their legislature.

Massachusetts, which gave this question more consideration than any other State, asked the Supreme Court for a judicial opinion as to the constitutionality of the proposed measures. New Hampshire did likewise. In both States the constitutionality of the proposed laws was upheld.

Just before adjournment, Massachusetts, which had under consideration more than a score of such bills, succeeded in passing the only compulsory liability insurance law of the 1925 session of the State Legislatures, up to the time of the present writing. This law, however, will not take effect until Jan. 1, 1927, and in the meantime, it is reported, a strong fight will be made to petition for a referendum with a view toward preventing the enforcement of this law.

Aimed Against Car Thieves

Laws providing for abstracts or certificates of title as a prerequisite to the registration of motor vehicles and designed to destroy the stolen car market, such as are already in force in twelve States, have just been enacted in Arizona, Colorado, Montana, Oklahoma, Oregon, South Dakota, Utah and West Virginia. Seven other States, namely, Arkansas, Kansas, Minnesota, Nebraska, North Dakota, Texas and Washington, were unsuccessful in an attempt to put such a law upon their statute books. Most of these enactments are patterned after the Michigan law which has worked out successfully and is considered one of the best laws so far devised dealing with this important subject.

This law provides that every owner of a motor vehicle must possess a certificate of title proving his ownership. This title is duly recorded and when the motor vehicle is sold, the certificate must be assigned, the assignment recorded and a new certificate issued before registration plates can be procured by the new owner. It is believed that if such a law is adopted uniformly throughout the States a great reduction in automobile thefts will be effected.

Due to the increasing number of accidents at grade

crossings, a number of laws have been introduced requiring all motor vehicles to come to a full stop before crossing railroad tracks. Very few such laws were passed, as it was not generally believed that they would materially reduce accidents. Delaware and Oklahoma are the only States so far reporting such enactments.

Many of these bills were modified to provide for a full stop only at certain designated dangerous crossings and in this form they have become laws in Arkansas, Michigan and Minnesota. In Colorado, Idaho, North Dakota and Wyoming buses are now required to make this stop. Several attempts were noted to compel vehicles to come to a stop before entering a main highway, but to date none of these bills has passed. Florida has proposed that a permanent warning bump be built into the highway not more than 100 ft. from the railroad track.

It is quite apparent, however, that the only adequate and permanent solution to the problem of eliminating grade crossing fatalities is such a provision as has been recently proposed in New York. In that State a concurrent resolution was adopted proposing an amendment to the State Constitution which would authorize the legislature to create a debt not exceeding \$300,000,000 to provide funds for the elimination of all railroad grade crossings within the State. Other States, notably Idaho, Nebraska, North Carolina, Ohio and West Virginia, have also shown a general tendency to meet the problem in this way.

A great variety of other subjects were up for consideration. Among the large number of laws regulating lights we find a tendency in some States to completely eliminate the use of spot lights. None of such bills has so far become a law, although there were some enactments regulating the use of these lights so as not to blind the oncoming driver.

First Aid Kit Law Loses

There have also been laws dealing with equipment, such as signals, mirrors and safety appliances. Some States attempted to make all motorists carry first-aid kits while others proposed that governors be placed on all motors so as to make an excessive rate of speed impossible. Such bills were defeated.

Many new laws were enacted providing for very heavy penalties for intoxicated drivers. There were other laws providing for examinations for operators' licenses and limiting the age at which one may operate a motor vehicle, with a view toward greater safety on the highways.

In Next Week's Issue

WHAT are the body builders doing? What new developments are engaging their attention? Next week's issue will tell you. In this number we will report in detail the happenings at the annual convention of the American Body Builders Association in Detroit.

Every automotive manufacturer is interested in employee training as a means of keeping the factory force at maximum efficiency and assuring an adequate supply of skilled labor in the years to come. There will be a worth-while article on this subject.

Another feature will deal with two kinds of sales convention speakers, the kind that just talks and the kind that says something. This is the open season for conventions. Find out which of the two classes you want taking up the time of your men.

ENGINEERING of London has an editorial good word for the small taxicab operator whom his competitors in the transport field of the British metropolis have been trying to keep from cruising (or "crawling" as they call it over there). Says the paper referred to:

"More than one of the representatives of the larger road transport organizations who joined in the discussion gave the impression that they regarded the small man as having no legitimate status. Such a view may be economically, if not ethically, sound, but if this is so it can only be regarded as regrettable. We confess to rather an admiration for the man who, breaking no law, is prepared to stake his slender resources in an endeavor to earn an honest living. He is called hard names by his larger competitors, but in truth his only crime is the retention of a spirit of adventure in these humdrum times. It would not be amiss in many cases if those who dubbed him pirate would look back on the beginnings of their own enterprises, and seek to define the difference between their own actions in the past, and that of those they condemn in the present."

EDITORIAL

What Lies Ahead?

THE automotive industry seems now to be in the process of making the most orderly readjustment of production after the spring peak that has taken place in several years. Important executives throughout the industry have kept their attention focused on the relation between production and sales more closely than ever before, with the result that the glutted market which so often has followed peak production periods seems likely to be avoided in nearly all lines this summer.

With this favorable situation as a basis, the outlook for automotive business for the rest of 1925 is good. Despite a subtle undercurrent of pessimism in the recent pronouncements of some industrial leaders and the dissatisfaction of Judge Gary with the activities of Congress, general business conditions show every sign of stability. Car loadings in May were very large and there is no reason for industrial depression.

Further production records are not to be expected this year in the automotive field. Profits should accrue, however, as a result of the greater care which is being used in readjustment of output schedules and in increased efficiency of marketing methods. Increase in the dividend rate of an important parts company and resumption of dividends by another company in the parts business last week are favorable notes, while opening of a new Ford assembly plant in Minneapolis and the bringing out of a new make of car in the low-price quality field by a manufacturer with enough experience in the business to know pretty well what he is about are other evidences of confidence in the future. Accessory and parts sales are fair in practically every section of the country and are good in many areas.

The next six months bid fair to be a period of sound progress and fair profits for the automotive industry as a whole.

Commerce on Wings

THE important thing about the present publicity being given to aviation is the indication that attention finally is being centered on use of the airplane for practical utilitarian purposes. Government support still is needed, but private citizens now have gone ahead far enough to point very definitely the direction development ought to take.

Being considerably behind in commercial aviation, America has been in the habit of bolstering up an inferiority complex on this subject by pointing to the various records held by American pilots and machines. These records are all very creditable, but demonstration of consistency of performance will mean much more to the industry than have individ-

ual record-making achievements.

The approval by all interested parties of a city-to-city airplane reliability tour marks a definite step in the progress of commercial aviation in this country. It is true, as Howard A. Coffin pointed out the other day, that some enthusiasts are predicting immediate realization of results that cannot reasonably be expected to materialize for many years. But such enthusiasm is only natural when finally some real impetus is given to an idea that has been dear to many for a long while but which for many years received little practical support. It would be unfortunate if the public were led to expect too great results in a brief time, but enthusiasm is one of the essentials to sound progress and, by and large, is to be encouraged rather than disparaged.

Automotive Stability Assured

THE final production figures for May show that there was a falling off of about 4 per cent as compared with April, although the total of 404,300 vehicles turned out during the month reveals that the spring demand has held up in a very gratifying manner. A survey of the situation makes it apparent that May production might have been higher than the high peak of April if the factories had been able to obtain all the bodies needed for closed cars and if the heavy demand for roadsters had not been underestimated by some builders.

That the industry is continuing on a sound footing is indicated by the fact that the cars built in May, like those made in the other months of this year, are going into the hands of the public as quickly as physical transportation will permit.

Both vehicle and parts manufacturers expect production to be less in June and July than it was in April and May. One of the largest car makers said only the other day, "Despite the fact that we are very far behind on orders today, I don't expect to build as many cars in June as I am building this month. I'm watching the situation very closely. If demand keeps up, of course, we'll keep on building the cars. But we are prepared to keep our production down if sales fall off." That expression seems to be typical of the attitude of most car makers today.

Feeling in the parts industry is indicated by this statement from the latest Motor and Accessory Manufacturers Association business bulletin: "Makers of original equipment reported that May business would run about even with April and June show a falling off."

All this means sound, steady and profitable automotive business. Profits for the industry lie just as much in stability and proper relation between such factors as production and sales as it does in the numerical total of deliveries.

Our Industry Today

Manufacturers Prepare for Slower Season with New Models and Some Price Cuts—Expect Good Earnings for Second Quarter

NEW YORK, June 3—Signs multiply that the car producers are preparing in an orderly way for the keener competitive conditions that are looked for in the next month or so. New models are announced by several factories, and there are a few cuts in prices. Although the period when sales stimulants are seriously needed has not arrived, there is a feeling in many quarters that early preparations for the slower season are of strategic importance.

The new models emphasize the fact that current changes are in the line of refinements rather than representing radically new designs of chassis or bodies. In this as well as in other respects the industry is in a more stable condition than ever before and, therefore, better able to go through the year without serious losses through overproduction or the necessity of making major changes in factory equipment.

Earnings statements for the second quarter of the year, it is expected, will be the best that many companies have shown for a long period. The same situation is reflected in the resumption of dividends by companies that had made no payments for a year or more, and in retirements of notes and other prior obligations against stock earnings.

Production In Line With Demand

These evidences of prosperity are the more remarkable in view of the fact that production for the first five months of 1925 was no greater than for the corresponding period last year. The reason is that during the last months of 1924 and the early months of the current year production was kept down to the minimum of demand from dealers, so that there was no need for costly liquidation and other losses that accompany overproduction.

The outlook is that production will be curtailed as soon as the slowing down in orders from the field justifies factory retrenchment. The same holds true of the parts and accessories makers, who have been having an excellent year to date. Sales of replacement parts and shop equipment especially showed sharp gains in May. Original equipment orders are falling off.

WILLYS-OVERLAND DIVIDEND

TOLEDO, June 3—Directors of the Willys-Overland Co. declared today the regular quarterly dividend of \$1.75 on preferred stock, payable July 1 to holders of record June 20.

Fire, which destroyed a parking shed at the Overland plant this morning, consumed 165 cars belonging to workers and seriously interrupted operations in many departments at the factory. The cars were parked in a frame shed apart from the plant building.

Automotive Markets Spotty, Reports Show

Several Important Centers Find Sales Off—Others See Conditions Favorable

NEW YORK, June 3—The number of distributing centers reporting a slowing up in sales has increased during the past two weeks. The tendency is by no means general, however, and some of the most important sections are finding current business rather better than early in May.

It appears that in the communities where sales are being maintained or increased, there were earlier unfavorable conditions, such as prolonged cool weather, and that the normal demand is now being felt. There is a very definite likelihood that, despite these spurts of activity, May business the country over will be found at no greater level than April, and that June will show a general tendency toward declines.

Some Deliveries Delayed

Production in the automobile factories has been steadily maintained at or near capacity, and this has enabled some of the producers who had shortages to catch up with demand. But delays in deliveries of several of the most popular makes are still the rule.

Accessory and tire business is excellent. A slowing up in production, however, may be inferred from a report from Toledo that during the last week in May there was a decline in working forces at the automotive plants of 910 men. Most of these factories produce parts and accessories.

Whereas April developed a tendency for rural sales to outstrip urban, the situation was reversed in several important centers late in May, city business tending to forge ahead. Poor crop conditions were the underlying factors.

The used car market is spotty, and on the whole it appears to be better than it was this time last year. Indianapolis reports that used car sales are slowing

up, but adds that there is a tendency to draw sharper lines on trade-ins. The same note is sounded in Louisville, whence comes the report that conservative trading is showing results in lower used car stocks. A marked increase in demand for used cars is shown in Kansas City. In Sacramento many dealers have had to take losses to move used cars, but they are now making lower appraisals. In Philadelphia the small stock of used cars is being reduced.

From Birmingham comes the word that the "used car market is very slow, though present stocks are lower than they have been in several years." On the other hand, emphasizing the irregular tendencies in this market, Dallas reports dealers heavily stocked and staging "special sales" at which prices are slashed considerably. In San Francisco the used car market shows little sign of improving. Milwaukee finds that used car stocks are lower, and other optimistic reports come from Boston, Chicago, St. Louis and Cincinnati.

(Continued on page 1006)

404,300 Vehicles May Output Mark

Total Was 4 Per Cent Under Record for May, N. A. C. C. Advance Figures Show

NEW YORK, June 3—May production of cars and trucks in the United States was 404,300 vehicles, according to preliminary estimates of the National Automobile Chamber of Commerce. This is about 4 per cent under the revised figures for April, which totaled 421,878, setting a new all-time record. The decline in May, 1924, as compared with April, 1924, was 17 per cent.

The total for the first five months of this year is 1,693,879, or 1.7 per cent under the corresponding period of 1924.

May production would have been much higher had the factories been able to obtain all the bodies needed for closed cars. Production of chassis, which does not show in the output totals, was higher than the figure for complete cars in several of the factories.

Some underestimates were made of dealers' requirements for roadsters. A great many more of these could have been sold during the month had production been scaled to meet the demand.

FABRIC BODY LICENSES

PARIS, May 28 (by mail)—Licenses for the construction of Weymann fabric leather bodies have been taken out in France by the Panhard-Levassor and the Mathis automobile companies.

MOTOR STOCKS LEAD IN MARKET TRADING

NEW YORK, June 4—Sensational activity in motor shares featured Wall Street this week, a number of stocks reaching new high records. The advances coincided with a number of earnings statements reflecting a high state of prosperity in the industry.

Among the leaders are Chrysler, Hudson, Studebaker, Packard, Pierce-Arrow, Reo and Nash, the latter stock hitting 445 on Wednesday, an advance of 200 points in about two months. The street was filled with stories of large fortunes made in Nash operations.

A technical corner sent Maxwell A and B shares soaring and led to the suspension of trading in these stocks. The situation resulted from the fact that less than 10 per cent of the Maxwell shares were in the market, the rest having been deposited for conversion into the new Chrysler shares. A large short interest had developed, and the bears found themselves unable to buy stock for deliveries.

Ajax Output Averages 18 Show Cars Daily

RACINE, June 3—An average of 18 cars daily has been produced by the Ajax Motors Co. during the first three weeks of actual production. No attempt will be made to speed up production while the manufacture of display cars is being carried out.

In a statement issued today David Averill, vice-president and general manager of the company, said that as soon as distributors throughout the country had been supplied with models of the sedan and touring cars for exhibition purposes, the factory production would be accelerated to supply the demand.

A schedule of 100 cars per day is expected to be reached by Sept. 1, according to Mr. Averill. The plant capacity is 250 cars per day and provisions can be made with addition of machinery to increase this to 300.

General Motors to Have Own Insurance Company

NEW YORK, June 4—Organization of an insurance company to handle fire and theft insurance on cars sold at retail which General Motors dealers and distributors finance through the General Motors Acceptance Corp. has been authorized by the finance committee of General Motors Corp.

Commencing operations with a capital of \$500,000 and a surplus of \$1,000,000, the new company, which will be named the General Exchange Insurance Co., will make applications to do business in all States.

Speakers Voice Progress of Body Building at Detroit

*Builders Discuss Style Trends, Materials and Paint
at Association Convention—Laidlaw Elected
President for Ensuing Year*

DETROIT, June 4—Several car makers have discontinued manufacture of their own bodies in the last few months and have turned over this work to specialized body building companies. This is a tribute to the efficiency of the specialized body builder and will have a favorable influence on the future of the body industry. Such was the thought developed by J. A. Daugherty, president of the Automobile Body Builders Association, in his opening address at the fifth annual meeting of the association held here at the Hotel Statler, June 2 and 3.

N.A.C.C. Votes Drive on Insurance Rates

Will Join N. A. D. A. in Dealer
Meetings—Elect Graham
to Membership

NEW YORK, June 4—A drive to lower costs of insurance for automobile buyers was launched today at a meeting of the board of directors of the National Automobile Chamber of Commerce, when a committee headed by Col. Charles Clifton was authorized to consider plans for forming a cooperative company to handle automobile insurance on a cost basis.

The directors also voted to join with the National Automobile Dealers Association in a series of meetings for dealer education, to be started in the fall. A joint committee meanwhile will work out a program covering the main features of efficient conduct of dealer business operations.

The decision to take action on the insurance question was brought about by reports that prospective buyers are objecting to the high insurance charges included in purchases of new cars, especially when sales on a part payment basis are involved. The automobile men are convinced that the rates charged by insurance companies are higher than justified.

The insurance campaign will be linked with the drive on high taxes as part of a general movement to reduce costs to the ultimate consumer. General Motors Corp. has already decided to form its own insurance company to handle policies in connection with sales through the General Motors Acceptance Corp.

The N. A. C. C. board elected to membership George M. Graham, vice-president of Chandler Motor Car Co., who succeeds C. C. Hanch. Mr. Hanch, who is now general manager of the National Association of Finance Companies, is no longer directly connected with automobile manufacture. Alvan Macauley, president of the Packard Motor Car Co., succeeds Mr. Hanch as vice-president of the passenger car division.

Most body builders have been busy this year, he said, but many problems still remain to be solved in the industry. The tendency of car manufacturers to place large orders for bodies to be delivered on a definite schedule and then to order shipments stopped suddenly still is strong enough to cause considerable trouble to the body manufacturers, he pointed out and urged that obligations be fulfilled once they have been contracted.

Several speakers voiced the belief that the limit has been reached as regards low headroom in bodies and pointed out that the ideal body will combine a high degree of both comfort and style.

The steel body has many advantages, the body builders think, but believe that the high die costs involved in its use will prevent its adoption except on quantity production jobs. Considerable interest was shown in fabric body developments, particularly in the use of fabric for bus bodies.

Stresses Closed Car Sales

W. K. Towers, advertising manager, Paige-Detroit Motor Co., speaking in the absence of Harry M. Jewett, emphasized the importance of body design in present day merchandising and pointed to increased closed body sales as the outstanding development of recent years.

If American manufacturers would equip open cars with tops which actually could be put down without difficulty they would sell a lot more vehicles of this type, particularly in foreign markets, Ottis Lucas, Lincoln Division, Ford Motor Co., told the body builders in his talk on trends in body policies among builders of fine cars. The trouble with most tops today, he said, is that one can't put them down; consequently the car is not really an open car.

Representatives of various paint and varnish concerns told of new systems and methods of painting bodies. L. C. Hill, of the Valentine Co., pointed out that the ideal toward which the paint chemist must work is a paint job that requires only one coat and which will dry in half an hour. While such an ideal seems ridiculous today, he said, definite advances along these lines in paint chem-

(Continued on page 1002)

Send Makers Notice of Balloon Tire Right

Initial Action Regarded as
Compromise Attempt on
Patent Issue

AKRON, June 3—Tire manufacturers have received formal notice from the Steel Wheel Corp. of Detroit that this company is the "exclusive licensee under the Putnam patent for the manufacture of balloon tires." They were told that a license to make balloon tires under this patent would be granted on liberal terms and were warned of infringing on the patent.

This notice is regarded as the first step in negotiations which are expected to be started by the wheel corporation with tire manufacturers in an attempt to effect a compromise on the patent issue. Information received here from Detroit indicates there is practically no likelihood that any effort will be made to collect royalties on the 9,000,000 or more tires which have been manufactured in the last few years while the patent application has been pending.

May Link Sales with Wheels

Although no statement has been made as to what steps will be taken to collect royalties on tires to be manufactured, it is generally expected the patent will be used to link up sales of balloon tires with sales of steel wheels, products of the Motor Wheel Corp., which is a subsidiary of the Steel Wheel Corp.

Alden L. Putnam, the inventor, is understood to have made the statement that "the patent will not be used to hold up anyone."

March shipments of balloon tires totaled 1,168,297, against 764,874 in February and 141,272 in March, 1924. This is the first month statistics on this class of casing have been issued by the Rubber Association of America. Production in March was 1,217,367 casings, compared with 740,106 in February and 216,808 in March last year.

Balloons Comprise Half Output

Balloon tires now make up more than 50 per cent of the total output of approximately 115,000 manufactured daily in the Akron district, as a result of the constantly growing demand for the low pressure casings from all over the country.

Another factor helping balloon tire sales was the failure of manufacturers to increase prices in this line May 1, while high pressure cord tires were advanced on an average of 10 per cent. They were able to maintain the original price level because more plies of fabric are used in a balloon tire and comparatively less crude rubber. Although the crude rubber market advanced during May to the highest point in five years, and is now around 65 cents a pound, compared with 17 cents last summer, cotton

materials have declined in price since the first of the year.

The second price revision announced June 1 by the Firestone Tire & Rubber Co. included a 10 per cent increase on balloon tires, but at the same time high pressure casings were also advanced another 10 per cent, so that balloon tires are still on a comparatively lower price level.

Eddins Heads Sales of Olds Motor Works

LANSING, June 1—I. J. Reuter, general manager of Olds Motor Works, announces the appointment of D. S. Eddins as general sales manager, effective June 1. In making the announcement Mr. Reuter says there will be no change in the distributing policy of the company.



D. S. Eddins

Mr. Eddins has been connected with every phase of the selling division of the automobile industry during the past 18 years, and is resigning as assistant general sales manager of the Chevrolet Motor Co. to take the new position.

Starting in as a retail automobile dealer, Mr. Eddins later became a distributor, spending four years in these two capacities. Fourteen years ago he became affiliated with automobile factory sales work, and six years ago joined the Chevrolet organization, opening its wholesale branch in Denver. Later he was made Atlantic Coast regional manager in charge of the north-eastern section of the United States for Chevrolet, and several years ago was appointed assistant general sales manager.

DIAMOND STEEL EXPANDS

MINNEAPOLIS, June 3—The Diamond Steel Products Corp. has taken over a part of the old Pan Motor Car Co. plant at St. Cloud and will begin the manufacture of piston rings and automobile accessories there about July 1. Officers of the company said that eventually the entire plant probably would be moved to St. Cloud.

Holds Trade Body Information Legal

Supreme Court Decision Legal-
izes Exchange of Data by
Associations

WASHINGTON, June 1—In two decisions of far reaching importance to American business, the United States Supreme Court held today that trade associations do not violate the anti-trust laws in gathering and disseminating among their members information as to costs and quantity of production, stock conditions and sales prices, and cannot be prosecuted for so doing.

The majority decisions written by Justice Stone were given in the cases of the Maple Floor Manufacturers Association and the Cement Manufacturers Association, both of which had been found guilty by the lower courts for violating the anti-trust laws. The Government contended that under the guise of exchanging trade information these associations had virtually formed and were operating a commercial pool in defiance of the Sherman anti-trust act.

No Intent to Evade Law

In his decisions, Justice Stone argued that a combination in these two trades might have come about through the methods complained of, there was nothing to show that such was the intent, and that on the other hand, especially in the case of the maple flooring manufacturers, diligent effort was made to keep within the anti-trust laws.

Industrialists throughout the country consider the two actions as test cases, in which the final decision would govern to a large extent the future business methods, manufacturing and selling costs of some of the greatest corporations.

NEW YORK, June 3—Commenting on the Supreme Court decisions covering trade associations, Alfred W. Reeves, general manager of the National Automobile Chamber of Commerce, said:

"The decisions are very important as affecting business and trade associations generally. The legitimate work of associations should be greatly benefited. The automobile industry is not immediately concerned, however, since all our information is made available to the public, and since our prices are widely advertised."

SAY GASOLINE TAXES DIVERTED

WASHINGTON, June 4—A large part of the gasoline tax paid by motorists in the past twelve months was diverted from road purposes and applied to other uses, ranging all the way from the development of fish hatcheries to paying the salaries of political henchmen attached to state legislatures, declared a statement issued here this week by the American Automobile Association.

Boom Air Transport at Detroit Meeting

Aviation Society Hears Coffin,
Mayo and Kettering on
Commercial Aviation

DETROIT, June 1—At the fourth annual dinner of the Detroit Aviation Society, several outstanding figures in the automotive world, including Howard E. Coffin, vice-president of the Hudson Motor Car Co.; William B. Mayo, chief engineer of the Ford Motor Co., and C. F. Kettering, president of the General Motors Research Corp., stressed the facts that Detroit is taking the lead in the aviation industry as it did in the automobile field 20 years ago, and that the city's newest industry, that of building aircraft, will eventually be its largest.

Assails Government Policy

Howard E. Coffin, who was recently elected president of the \$10,000,000 concern which will operate night flying planes between New York and Chicago, assailed the governmental policy of the United States in not lending greater assistance to the development of commercial aircraft and air routes, stating that since 1919 the Government has had "no definite air policy or comprehensive aid." Government subsidies are not required, Coffin stated, but urged that Federal aid be given to the preparing of national airways so that private enterprises can pay their own way unaided, and at the same time enable a great reserve for national defense to be built up. Stories of air flivvers and of the airplane ruining the railroad and automobile business only serve to break down public confidence, he said, while investment in air development schemes at this particular moment is only for those who can afford to lose.

Ford Planes Make 33 Trips

The newly elected president of the society, William B. Mayo, in discussing the record of the two Stout metal planes operating out of Ford's Dearborn plant, stated that since the service between Detroit and Chicago began operation a little over a month ago, 33 round trips have been made carrying altogether 75,000 pounds of freight. Only two forced landings have been made during this period, neither of these being due to engine trouble and in both cases the plane returned to its depot.

Mayo said that an intercity air tour probably would be run from the Ford airport during the summer, and that an immediate extension of the Ford air line is contemplated to link the Detroit plant with its factories in Buffalo and Toronto. Within a few weeks the airship mooring mast will be completed, and it is hoped the government will permit the "Shenandoah" to tie up to the mast for several days on its visit to Detroit.

PRESIDENT WATCHING FORD AIR EXPERIMENT

WASHINGTON, June 4—While President Coolidge is looking with keen interest on the commercial aviation experiment of Henry Ford, who has established an air service between Detroit and Chicago, it is learned here that the Chief Executive is opposed to subsidizing commercial aviation.

In general, the administration's policy is to create a healthy growth in all industrial activities, but the President believes that commercial aviation must pay its own way.

A daily check will be kept on the Ford trial route by Government experts in order to determine the cost of the service for mail and express and fix rates that would result in a profit.

C. F. Kettering stressed the necessity of night flying to insure economical operation of aircraft, and that the planes must be safe to fly under all extremes of weather conditions. He mentioned in a futuristic way the possibility of operating aircraft by radio.

Other speakers at the dinner included James J. Davis, United States Secretary of Labor; General J. W. Joyes of the Ordnance Technical Staff, Washington, and James Schermerhorn, the toastmaster. Eight citations of honor in recognition of valuable contributions to the development of aeronautics for the last year were made, including in brief:

- 1—U. S. Air Mail Service for the 30-hour transcontinental mail service.
- 2—U. S. Air Service because of the "Round the World" flight.
- 3—U. S. Navy for the 9000 mile flight of the Dirigible "Shenandoah."
- 4—Henry Ford for the establishment of the Detroit Airport.
- 5—Packard Motor Car Co., for the development of the 1500 engines used on the recent seaplane world's endurance record of 28 hours.
- 6—Stout Metal Airplane Co., for the construction of the all metal planes.
- 7—Wright Aeronautical Corp., for the development of the largest radial air cooled engine.
- 8—Curtiss Aeroplane & Motor Co., for development of the "D" water cooled engines.

The meeting was attended by 250 air enthusiasts, and as would be expected in view of recent interest in aviation, there was double the attendance of any previous annual dinner.

SPRING CONTROL DEVICE

INDIANAPOLIS, June 1—Robert H. Hassler, Inc., has introduced a new spring control device which will be known as the Hassler Stabilizer. A feature of the device is that the connecting belt is carried entirely outside and consequently does not carry moisture or dirt into the mechanism.

Raise in Tire Prices Effective June 1

Second Boost This Year Led
by Firestone—Balloons
Included

AKRON, June 2—Announcement of the second increase in tire prices this year has been made by the Firestone Tire & Rubber Co. Effective June 1 every grade of tire, including balloons, is advanced from 5 to 10 per cent.

Other tire companies followed Firestone with announcements of similar price increases.

The official price list sent to the Firestone dealers includes increases of 5 per cent on 3-in., 3½-in. cord and motorcycle tires and "999" fabric tires. Prices of all other fabric, cord, balloon and solid tires and inner tubes are advanced 10 per cent.

Coupled with the first upward revision May 1 of 5 to 10 per cent, high pressure pneumatic cords, except the 30 x 3½ in. size, and solid tires are now 20 per cent higher than they were at the beginning of the year.

The first readjustment did not include fabric casings, 3½-in. cords or balloon tires, but increased prices on regular cord tires 5 per cent and on tubes, solids and truck and bus pneumatics 10 per cent.

Continued high cost of crude rubber is cited by President H. S. Firestone as the reason for both price increases. On May 1 crude rubber was quoted at 45 cents a pound, and on June 1 close to 65 cents.

Tire advances have not been as rapid as the rise in the crude rubber market, because the manufacturers have been operating on low cost rubber, much of which was purchased on contract last year. Mr. Firestone blames the British crude rubber restriction act for forcing prices of the raw material to the highest level in many years.

SPAIN EXTENDS AGREEMENT

WASHINGTON, June 4—Cable advices have been received by the Automotive Division of the Department of Commerce to the effect that there has been an extension of the commercial agreement between the United States and Spain for one year from May 5, and indefinitely thereafter, but subject to termination at three months' notice. The United States, therefore, will continue to trade with Spain under the same conditions as have been in effect since November 5, 1923.

The extension of the commercial agreement removes all uncertainty as to the customs treatment of passenger cars and trucks imported into Spain from the United States, for these products will continue to be admitted under the same favorable rates of duty as have been enjoyed in the past.

Detroit Buys 11,246 New Cars in May

Month Establishes New High
Record—Fords Represent 53
Per Cent of Total

DETROIT, June 3—Sales of new cars in Detroit in May reached the record total of 11,246, comparing with 8,792 in April, and 8,607 in May last year. Closed car deliveries were 6,827 to 4,419; open truck deliveries for the month were 674, 30 under the April total and 8 under the total in May last year.

Ford car deliveries during the month totaled 6,158, or 55 per cent of the total business for the month. The Ford business represents a gain of 2,000 over April and is ascribed in large part as due to the low down payment plan. Ford truck deliveries were 360, or 53 per cent of the total.

Sales of all low priced cars made up 66 per cent of the month's total business. Cars in the \$1,000 price class and under took 80 per cent. Ford business in May last year was 53 per cent of the total. Low priced cars including Ford had 67 per cent of the total and cars in the \$1,000 class and under had 77 per cent. Medium priced cars sold 17 per cent of the May total this year and 18 per cent of the total in May last. The high priced car total was 3 per cent this year as against 5 last.

Stutz Announces New 6-94 Sedan at \$3,050

INDIANAPOLIS, June 1—The Stutz Motor Car Co. has introduced a new five-passenger sedan listing at \$3,050 on its 6-94 chassis. A feature of the new model is a special windshield construction which gives improved vision and more room to the occupants of the front seat. It is finished in Lacqueroid with a choice of colors being given the purchaser. Balloon tires and stabilators are regular equipment.

HOLLINGSHEAD STOCK

PHILADELPHIA, June 2—The R. M. Hollingshead Co., Camden, N. J., manufacturer of Whiz products, has filed articles at Dover, Del., increasing its capital stock to \$20,000,000. Articles of incorporation have been filed under the name of the R. M. Hollingshead Corporation, to deal in securities. The company, which makes chemicals for automotive and household purposes, was chartered in New Jersey in 1897.

The new capital, according to R. Bagley, vice-president and secretary, will be used to take care of expansion of the business. One of the big capital items is the new plant under construction adjoining the company's original building, the new structure to cost upward of \$600,000.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, June 3.—Reduced activity last week in retail merchandising, and in wholesale and jobbing trade as well, reflected the widespread cold wave at the beginning of the period. Considerable damage to corn and fruits especially was reported.

The maintenance of more stable rates of industrial production, well sustained high levels of distributive trade, and the strength of commodity and security values have all contributed to increased confidence in the general business outlook.

The estimated output of 8,445,000 net tons of bituminous coal, including lignite, in the week ended May 23 marked a continuation of the gradual recovery in production which began about the middle of April. Buying, however, continues on a restricted scale, and prices remain correspondingly low.

Petroleum production continues its expansion, the average daily output in the week ended May 23 being 2,314,750 barrels, or 8800 barrels more than in the week before. This figure exceeds the previous high record established in September, 1923, by 34,050 barrels.

The effort to effect systematic, concerted curtailment of cotton mill operations is a reflection of the slow movement of products into consumption and the resulting accumulation of inventories in the hands of manufacturers.

Revenue freight loadings in the week ended May 16 numbered 984,916 cars, the largest weekly total reported thus far in 1925. They exceeded the corresponding figure for 1924 about 8 per cent.

Combined sales of two leading mail order houses in May were 7.7 per cent above the figure for May, 1924.

Wholesale commodity price averages rose last week. Professor Fisher's index stood at 158.0, as compared with 155.3 the week before.

Discounts by Federal Reserve banks increased \$75,600,000 in the week ended May 27, to \$413,999,000, the largest total since the last week in February. Acceptances bought in open market increased \$2,400,000. These changes, together with a decrease of \$9,200,000 in holdings of United States Government securities, resulted in a gain of \$68,800,000 in total earning assets.

The circulation of Federal Reserve notes increased \$14,200,000, the first expansion reported since April 8. Deposits increased \$25,500,000. The ratio of reserves to combined deposit and Federal Reserve note liabilities declined from 77.8 to 77.0 per cent.

Announce Promotions of Dodge Officials

Reorganization Following Sale
Results in Advancing
Executives

DETROIT, June 4—Promotions of leading executives of the Dodge Bros. organization have been made following the reorganization incident to the purchase by Dillon, Read & Co.

Frederick J. Haynes continues as president and A. T. Waterfall as vice-president. John Nichols, Jr., general sales manager, becomes vice-president in charge of sales and A. Z. Mitchell, factory manager, becomes vice-president in charge of manufacturing. H. V. Popency, secretary of the former company, is now secretary and treasurer. R. J. Fry is now assistant secretary and treasurer.

The executive personnel appointed by Mr. Haynes includes the following: J. R. Lee, assistant to the president; Russel Huff, director of engineering; Clarence Carson, chief engineer; R. H. Allen, purchasing director; P. G. Findlay, director of traffic; R. A. Vail, factory manager; Albert A. Andrich, production manager; F. L. Sanford, general sales manager; F. B. Walker, assistant general sales manager; J. H. Gordon, director of field survey; F. H. Akers, director of districts; Arthur E. Nafe, director of service; R. C. Graham, director of commercial car truck division; Howard Baker, director of civic relations; J. J. Palmer, export manager; H. J. New, distribution manager; E. G. Williams, export counsel; A. H. Schiappacasse, used car manager; George Harrison Phelps, advertising counsel; H. J. Koch, manager of advertising division.

High Production to Hold, Says Grant

NEW YORK, June 3—After studying conditions for three months in more than half the States, R. H. Grant, sales manager of the Chevrolet Motor Co., expresses the conviction that high automotive production will continue well through the second half of 1925.

Sales peaks and depressions of former years are beginning to flatten out, he finds, and the automobile has become a year 'round product, particularly since the closed car came into such favor.

Improved agricultural conditions indicate that the demand through the latter half of the year will be stimulated by thousands of farmer purchasers.

Mr. Grant expects that demand will increase slightly soon and hold unchanged for some time at a comparatively high level, but he thinks this possibility will have only slight effect on production, especially among the large companies. Recent production of more popular cars has not met the demand, he says, and thus steady production is assured by an accumulation of unfilled orders.

McCord Buys Control of National Radiator

**Sale Does Not Include Plant and
Real Estate—Expect to
Merge Companies**

DETROIT, June 3—The McCord Radiator and Manufacturing Co. has acquired the business of the National Radiator and Manufacturing Corp., also of this city, taking effect as of June 1, 1925, it was announced today by A. C. McCord, president of the former concern. The deal was negotiated by Mr. McCord with Adrian D. Joyce, president of the Glidden Co. of Cleveland, who with his associates some years ago purchased control of the National Can Co. and subsequently sold the can business to the Continental Can Co., re-incorporating the radiator business.

The sale includes inventories, equipment, patents and good will, but not the plant and real estate. It is contemplated to continue the operation of the National plant intact for the present, but ultimately this business will be merged in the main McCord plant at East Grand Boulevard and Riopelle Street, Detroit.

Will Continue McCord Lines

However, the Zig Zag radiator will be continued as one line of McCord products together with McCord tubular and cellular radiators, gaskets and lubricators. Neil McMillan, Sr., president of the National Radiator & Manufacturing Corp., expects soon to retire from active business, while Neil McMillan, Jr., and Forrest McMillan, who have been active in the management of National, together with many of their associates, will join the McCord organization.

Through the purchase McCord, whose larger radiator customers have heretofore included Dodge Brothers, Studebaker, Hupp, Moon, G.M.C. Truck and Mack Truck, now adds to the list such companies as Packard, Paige, Rickenbacker and Velie.

It will be enabled through co-organization of manufacturing and engineering facilities, processes, patents, etc., to better serve these customers and the industry as a whole.

McClure, Jones & Reed and Potter & Co., New York, are offering 30,000 shares class B stock of the McCord Co. at \$22.50 a share, to yield about 9 per cent on the basis of the \$2 a share dividend already being paid on this class of no par stock.

TRANSPORTATION TALK

WASHINGTON, June 3—Inroads that the private automobile and motor bus are making on the passenger traffic of the steam and electric railroads will be dealt with in an address on "Motor Transportation as a Passenger Carrying Agency" by A. W. Herrington of the Motor Transport Division Corp., U. S. A., at a meeting of the Washington section of the Society of Automotive Engineers,

to be held at the Cosmos Club on June 11.

Mr. Herrington's paper will be a direct answer to an article on "Roads, Motor and Rail" by Judge George W. Anderson of the Circuit Court of Massachusetts, which appeared in a recent number of a national magazine.

Hoover Favors Greater Old Rubber Reclamation

WASHINGTON, June 2—High prices for crude rubber makes profitable the chemical reclamation of used rubber, Secretary Hoover said today in commenting upon the conference held last Friday with A. L. Viles, secretary and general manager of the Rubber Association of America, and a delegation from that organization relative to the domination of the domestic market by the British rubber monopoly.

"One thing seems evident," the Commerce Secretary said, "that is, that the high price makes profitable the chemical reclamation of a much larger amount of used rubber for re-use, and previous experience indicates that our domestic consumption can be supplied up to 40 per cent from this source instead of 20 per cent which maintains when rubber is 35 cents per pound.

"The manufacturing capacity for increased rubber reclamation is ample," Mr. Hoover continued, "and under present price levels should continue to reduce the volume of American imports."

WHITE TO REARRANGE PLANT

CLEVELAND, June 3—Announcement has been made by Thomas H. White, vice-president and general manager of the White Motor Co., that all manufacturing departments in Cleveland will be closed from Aug. 22 to Sept. 8. This time has been set aside, says Mr. White, for the rearrangement of departments in order to obtain greater production capacity to meet the constantly increasing demands for White trucks and buses. All vacations of the personnel will be concentrated during this period.

Form Snow Motors to Produce Tractor

**Machine for Winter Use to Have
Fordson Plant—Prominent
Detroiters Interested**

DETROIT, June 1—The Snow Motors, Inc., has been organized here to manufacture a new snow tractor to be equipped with a Fordson power plant. The new company is capitalized at \$1,000,000.

The manufacturing of the machine will commence in a few days, in all probability in the old Northway Motors plant. It is planned to produce 10 machines during the present month, 500 by November and 1000 in the following year.

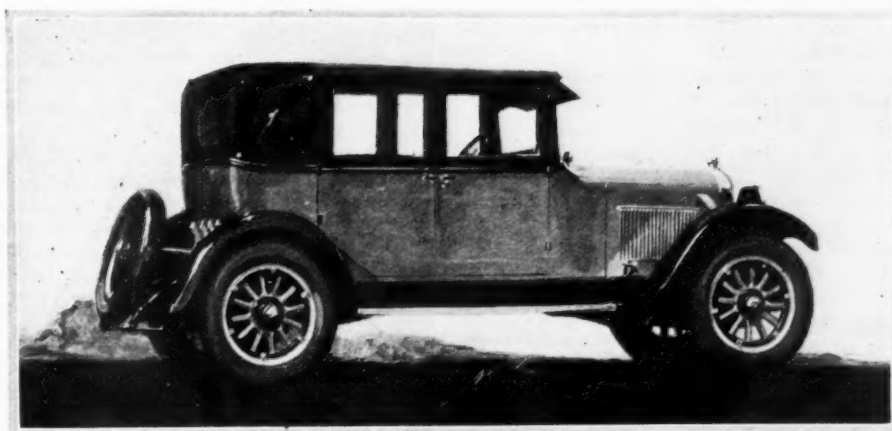
It is the intention of the company to send one of the machines to Switzerland shortly to be demonstrated in the snow drifts there before several representatives of European countries. Poland will send delegates to the demonstration and if the tractor meets with their approval the Polish Government will order several of the machines for winter army maneuvers.

William H. Knobloch, formerly connected with the Cletrac tractor, is president of the new concern and William Armstead, vice-president. Among the directors are: Howard E. Coffin, vice-president Hudson Motor Car Co.; Frederick T. Haynes, president of Dodge Bros., Inc.; Edwin Denby, former secretary of the navy; William S. Knudsen, president of Chevrolet Motor Co., and F. F. Beall of Gray Motors.

KELLY TRUCK BUSINESS DOUBLED

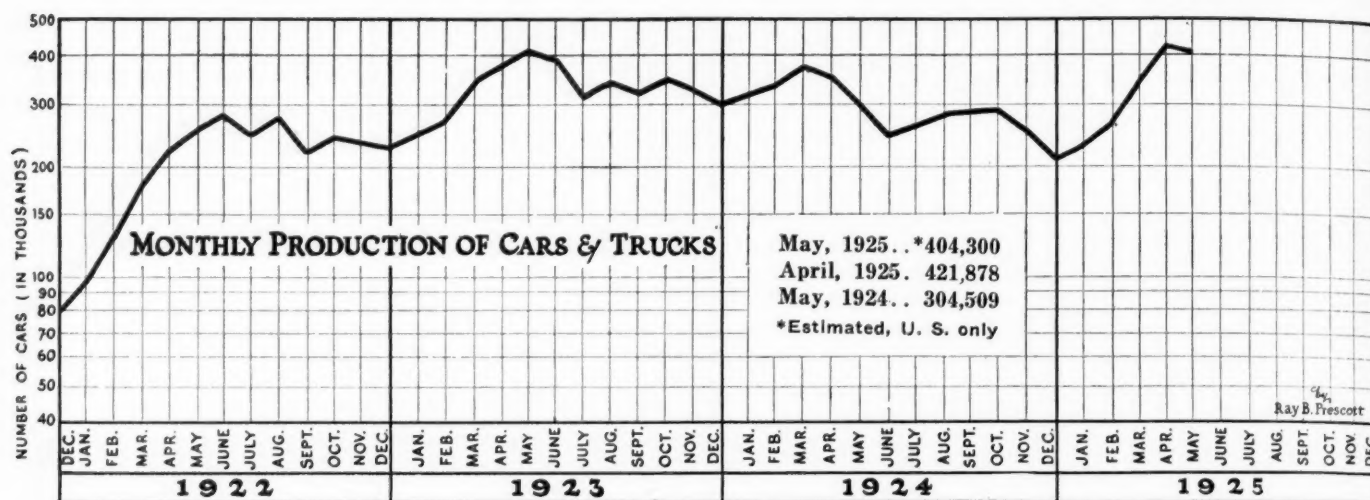
SPRINGFIELD, OHIO, June 2—Business was doubled in May in comparison with any month in the last five years, said Pearl A. Lewis, general manager of the Kelly-Springfield Motor Truck Co., in speaking of affairs at the Kelly works.

Improvements on Hupp Club Sedan



New body lines, more interior room and improvements to provide greater riding comfort have been made on this model. The price remains at \$1,375

MAY PRODUCTION PLACED AT 404,300

Moskovics Talks
on Car Industry

Tells of Developments at S. A. E.
Indianapolis Dinner—Schwab
and Kettering Speak

INDIANAPOLIS, May 30—The vast magnitude of the automotive industry was impressively pictured last night by Frederick E. Moskovics, president of the Stutz Motor Car Co., Inc., of America, in his opening remarks as toastmaster at a dinner given cooperatively by the Indiana section, Society of Automotive Engineers, and the Indianapolis Chamber of Commerce. The dinner was in celebration of the industry's silver anniversary and was a brilliant pre-race event which welcomed many S. A. E. members to the city. Some 600 S. A. E. members, other representatives of the industry and prominent leaders from other walks of life were present. The dinner was staged at the Indianapolis Athletic Club.

Gives Facts on Industry

"One out of every ten persons in the United States is employed by the automobile or allied industry," declared Mr. Moskovics, in offering some figures and facts concerning the proportion of this great enterprise. The automotive industry, he said, exceeds in magnitude anything that the world has ever known in industrial developments.

Mr. Moskovics, as toastmaster, offered an ever-changing menu of humor and pointed comment, exhibiting a versatility that allowed for no dull intermissions. In introducing Charles M. Schwab, the noted builder of industries, the toastmaster referred to him as the "world's greatest optimist."

Mr. Schwab admitted that he believes optimism is essential to business success. "But," he said, "the greatest problem facing business today is not technical engineering, great as that is, but rather

human engineering—business must have sentiment. Show me the business that has heart and soul, and I will show you a business that is a success." Mr. Schwab asserted that, while he has built industrial enterprises, he has never yet built one large enough. Despite the remarkable progress of the last 50 years, he predicted even greater growth for industry within the next half century.

C. F. Kettering, president of General Motors Research Corp., in a speech teeming with humor, gave some interesting facts concerning industrial progress. He also paid fine tribute to the technical men whose unselfish application over a period of 25 years has produced the motor vehicle with its modern mechanical perfections.

Major-General Mason M. Patrick, chief of the U. S. Army Air Service, predicted that an airplane speed record exceeding 300 miles an hour would shortly materialize.

G. M. Stockholders Lose
in Supreme Court Test

WASHINGTON, June 4—The Government won this week in Supreme Court of the United States its suit to collect income tax from profits derived by stockholders in the reorganization of the General Motors Company of New Jersey, into the General Motors Corporation of Delaware, which took place in 1916.

The decision was based on a test case against Walter L. Marr and his wife, who own common and preferred stock in the New Jersey company costing \$76,400, for which they received \$400,766 market value stock in the Delaware corporation. The commissioner of internal revenue taxed them \$24,944 on the difference in stock values, treating this difference as income, which they paid but sued to recover. They held the transaction had not resulted in a segregation of profits and was a stock dividend which is non-taxable. The Supreme Court over-ruled their appeal.

April Exports Show
Increasing Activity

28,833 Cars and Trucks Shipped
During Month—Australia
Demand Surprising

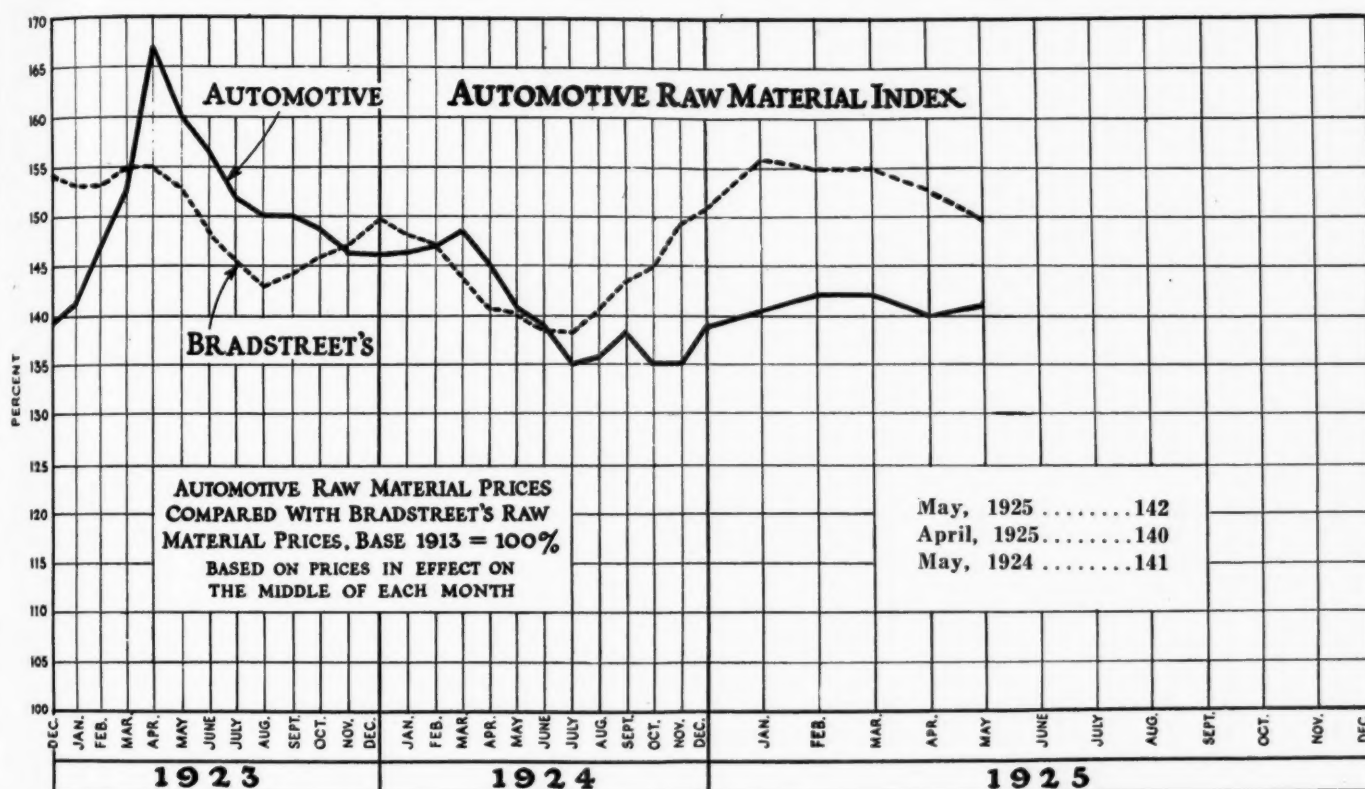
WASHINGTON, June 2—The total value of the April export trade in automotive products from the United States reached \$33,858,742, as compared with \$32,645,817 for March, \$19,289,224 for February and \$19,776,349 for January, according to Percy Owen, chief, automotive division, Department of Commerce.

This represents a four months' total of \$105,570,132, which approaches almost one-half the total 1924 automotive exports from the United States. By adding Canadian exports of passenger cars, trucks and parts to the totals of the United States for April and March, it is found that the total American automotive export trade amounted to \$36,622,576 and \$36,501,176, respectively, during these months. Exports of United States passenger cars and trucks for April numbered 28,833.

The ratio of exports to production (passenger cars and trucks combined) stood at 7.9 per cent for the month. Foreign assemblies, by totaling 16,279, an increase of 5.5 per cent over March figures, resulted in the ratio of exports plus assemblies to production falling 1.9 points below that for the corresponding March ratio.

In the distribution of the 23,806 passenger cars which went into the April export trade of the United States, Australia absorbed the surprising total of 5218 units, or almost 22 per cent of the total United States' trade in this line. As compared with the previous month Australia, Brazil, New Zealand, Spain and Denmark registered gains. On this list Denmark, particularly stood out, for exports to this market increased almost 480 per cent over the previous month.

PRICES SHOW SLIGHT INCREASE



Gardner Adds New Sport Sedan Listing at \$1,895

ST. LOUIS, June 2—The Gardner Motors Co. has just announced the addition of a five-passenger sport sedan, listing at \$1,895 to its six cylinder line.

The body is finished similarly to the eight cylinder two-door brougham in a two-tone Duco, light green above the belt line and dark green below. The upholstery is mohair. Equipment includes nickel-trimmed lamps and radiator, black leather top with coach irons, transmission and door locks, snubbers and bumpers front and rear, 30 x 5.25 balloon tires mounted on natural wood wheels, extra tire and cover, inclosed mechanical four-wheel brakes, automatic windshield wiper, one piece rotary-lift windshield, cowl and dome lights, cowl ventilator, rear view mirror, trunk and trunk rack.

MACK TRUCK DIVIDEND

NEW YORK, June 3—Mack Trucks, Inc., has declared the regular quarterly dividend of \$1.50 on the common and \$1.75 on the first and second preferred. These dividends are payable June 30 to stock of record June 15.

The following statement was issued by the company:

"When the March dividend was declared, it was understood that no consideration was given to the question either of an extra dividend or a stock dividend on the common. The same absence of consideration is believed to have

prevailed at today's meeting. The energies of the management and organization and the financial resources of Mack Trucks are fully absorbed in handling the record business which has featured 1925 operations. The company's plants for some weeks have been operating at full capacity on sales booked during the first five months. Output is running more than 40 per cent ahead of the corresponding period of 1924."

\$90 Reduction Made on Willys 6 Sedan

TOLEDO, June 1—A cut of \$90 in the price of the Willys-Overland six-cylinder sedan was announced here by officials today. The price is now \$895 f.o.b. Toledo. The car was first placed on the market in February. Robert Butler, sales manager of Willys-Overland, Inc., announced that agencies of the company in this city had broken all records in May by selling 566 Overlands and Willys-Knights in Toledo.

NEW TIRE FABRIC PLANT

ROME, GA., June 3—Contracts have been recently awarded by the Brighton Mills, Inc., of Rome, Ga., for the construction of a two-story plant for use as a spinning mill to manufacture fabric for cord tires. With this addition the company will become one of the largest tire fabric producers in the southern territory.

Studebaker Collects \$19,600,000 in May

SOUTH BEND, IND., June 2—A. R. Erskine, president of the Studebaker Corporation of America, announced today that Studebaker's May cash collections amounted to \$19,600,000 and exceeded disbursements by \$4,200,000. Receipts for March, April and May were \$54,000,000, and exceeded disbursements by \$14,000,000.

The bank balances of the company on June 1 were \$10,799,000, with no bank loans outstanding. May production was 14,492 cars. In April Mr. Erskine announced that all corporation bank loans would be retired July 1. This has been accomplished a month earlier than expected.

Mr. Erskine said that the demand continues to exceed the production, and that all the Studebaker plants are working at capacity and are manned by nearly 21,000 employees.

FORD EMPLOYS 161,000

DETROIT, June 3—Ford employees now total 161,000, a record. In the Detroit area alone 14,500 have been added since March 12. The River Rouge plant has 52,800 on its payroll, a new high mark. Highland Park still leads all plants with 55,300 employees, which is below the peak of 1923, when several thousand were transferred to River Rouge. Regional assembly plants have increased their enrollment to 44,000.

\$767,576 Net Income for Durant Motors

Surplus of \$24,889,848 Is Also
Shown by Balance Sheet
for 1924

NEW YORK, June 3—For the year ended December 31, 1924, Durant Motors, Inc., reports surplus of \$24,889,848, compared with surplus of \$41,649,178 on January 1, 1924, and net income of \$767,576, after expenses, compared with net profit of \$2,715,226, after depreciation and Federal taxes, in 1923.

Dividends and miscellaneous income decreased from \$4,405,364 in 1923 to \$2,172,311 in 1924, and administrative and engineering expense from \$1,690,138 to \$1,404,735.

From the surplus on January 1, 1924, plus the net income for 1924 was deducted \$17,526,906 for depreciation, doubtful accounts and revaluation of investments in affiliated companies, leaving a surplus of \$24,889,848.

The balance sheet as of December 31, 1924, shows:

Assets: Real estate, plant and equipment, less depreciation, \$117,712; investment in and advances to allied companies, \$43,105,825; listed securities at cost, \$3,856,271; cash, \$718,299; notes and accounts receivable, \$1,195,005; materials and supplies, \$56,411; deferred charges, \$548,137; participating contracts, less amortization of \$4,253,792, \$17,015,169. Total, \$66,612,829.

Liabilities: Accounts payable, \$277,385; taxes, payrolls and sundries, \$595,517; reserve for contingencies, \$200,000; capital stock (represented by 2,036,030 shares), \$40,650,079; surplus, \$24,889,848. Total, \$66,612,829.

MOVE BETHLEHEM OFFICES

NEW YORK, June 3—Pending the complete consolidation of the old Bethlehem Spark Plug Co., Inc., and the Splitdorf Electrical Co., the executive offices of the Bethlehem Spark Plug Co. and the Splitdorf-Bethlehem Electrical Co. will be moved to Newark, N. J., and operate from the offices of the Splitdorf Electrical Co. The Bethlehem plant of the affiliated companies will continue in operation. When the final legal and technical terms of the merger are completed, the affiliated companies will operate under the name of the Splitdorf-Bethlehem Electrical Co.

HERTZ SYSTEM IN EAST

PHILADELPHIA, June 3—The Yellow Drive-It-Yourself, Inc., a link in the nationally operated Hertz Drive Yourself System, Chicago, has opened a branch here. It is expected that the company will be operating eight or ten branches in this city in the near future. The cars in use are the Hertz sedan, six-cylinder, five-passenger type.

It has been announced that the Hertz organization will open a New York branch on June 1. One hundred cars are on the way from the factory to form the nucleus of this service to New Yorkers.

Publish Proposals on New German Tariff

PARIS, May 28 (by mail)—The German tariff covering automobiles, publication of which has been expected for several months, covers three classes of cars, having weight limits of, respectively, 2425, 3527 and more than 3527 pounds. Up to the minimum weight of 2425 pounds the proposals are 250 gold marks per 100 kilograms (220 pounds), dropping to 225 marks on July 1, 1926, 200 marks on Jan. 1, 1927, 150 marks on July 1, 1927, 100 marks on Jan. 1, 1928, and 75 marks on July 1, 1928.

With a weight limit of 3527 pounds, the tariff proposed is 175 marks per 100 kilos, dropping on the same dates to the following figures, 135, 120, 100, 75 and 40 marks. Weighing more than 3527 pounds, the rates begin at 150 marks and drop successively to 135, 120, 90, 70 and 30 marks on the same dates.

BUS TAX ILLEGAL

LOS ANGELES, June 2—The State Supreme Court has declared unconstitutional the 4 per cent tax on the gross revenue of all inter-city motor vehicles operated for compensation. The tax was voted by the 1923 Legislature. The law exempted hotel buses, taxi cabs and those operating within the corporate limits of a municipality.

The case was brought to the courts by the Trade Truck Owners Association of Southern California and the Motor Carriers Association.

RICKENBACKER CHANGES

DETROIT, June 3—Refinements in the Rickenbacker four-door coach-brougham model have improved its appearance and provided more room for the passengers. The front seat has been made three inches wider and the width of the rear seat also has been increased. In addition considerably more leg room has been provided. The body lines have been changed to full streamline, and the general contours have been considerably improved.

SENATOR TO DISCUSS AVIATION

NEW YORK, June 4—Increasing interest in commercial aviation is indicated by the fact that United States Senator Hiram Bingham of Connecticut will discuss that subject at the twelfth National Foreign Trade Convention in Seattle, June 24-26.

Senator Bingham commanded the Allied aviation base at Issoudun during the World War.

Prosperity Signs in Dividends and Sales

Reo Business Gains 40 Per Cent
— Martin-Parry and Fisher
Body, Ohio, Also Gain

NEW YORK, June 4—Extra dividends and increased sales are two of the signs indicating continued prosperity in the automotive industry.

With May business exceeding business of the same month last year by 40 per cent, Reo Motor Car Co. declared a quarterly dividend of 2 per cent and 1 per cent extra, payable July 1 to stock of record June 15. This was an increase of ½ per cent in the quarterly dividend. Reo reported marked gains in motor bus business and establishment of a sales connection with Calcutta.

W. A. Fisher, president of Fisher Body Corp., announces that the entire \$8,019,000 outstanding preferred stock of Fisher Body Ohio Co. will be retired Oct. 1 at 110 and accumulated dividends. Holders can turn in stock after July 1 at the Bankers Trust Co. and receive payment at 110 plus dividends from July 1 to date of payment.

Fisher Body Ohio Co. has declared the regular quarterly dividend of \$2 on the preferred, payable July 1 to stock of record June 15.

Martin-Parry Corp. April sales exceeded \$600,000 with net profit of \$49,985. For the quarter ending March 31, sales were \$1,176,417, with net profits \$51,262, equal to 41 cents a share on the 125,000 shares of stock. Earnings at a rate substantially in excess of the \$4 annual dividend are indicated.

Body Builders Meet

(Continued from page 995)

istry can be expected in the next few years.

George Mercer, of the Model Body Corp., urged the body builders to utilize the facilities of the standards committee of the Society of Automotive Engineers and to keep familiar with the work of the body division of that organization.

Following are the officers who were elected at the final session for the ensuing year:

President, W. R. Laidlaw, the Laidlaw Co., Inc., New York; first vice-president, John B. Judkins, J. B. Judkins Co., Merrimac, Mass.; second vice-president, D. E. Humphrey, Ternstedt Mfg. Co., Detroit; third vice-president, F. J. Radel, Radel Leather Mfg. Co., Newark; secretary and treasurer, F. D. Mitchell, 1819 Broadway, New York. For the executive committee: F. C. Getsinger, Getsinger-Fox Co., Detroit; F. A. Boynton, Murray Body Corp., Detroit; R. H. Croninger, Yellow Cab Mfg. Company, Chicago; A. N. Merrill, Beckwith-Chandler Co., Detroit; W. H. Ritter, English and Mersick Co., New Haven, Conn.

Men of the Industry and What They Are Doing

Holden Goes with Oakland

F. M. Holden has been appointed assistant chief engineer of Oakland Motor Car Co. He was with Cadillac from 1908 to 1921, as research engineer, resigning to take a like position with Peerless Motor Car Co. Recently he has been in charge of the General Motors proving ground at Milford. He will be associated at Oakland with three other former members of the Cadillac engineering organization: B. H. Anibal, chief engineer; Herman Schwarze, electrical engineer, and W. R. Milner, body engineer.

McLean Made Sales Manager

E. M. McLean has been promoted from sales division manager to general sales manager of the Four Wheel Drive Auto Co. He joined the company in 1916, coming from the Armleder Truck Co., where he was sales manager. Before that he was for five years with the Western Electric Co. in New York and Ohio.

Revelt on MacManus Staff

Pete Revelt, for ten years with the Willys-Overland Co. and United States Advertising Corp in various advertising and sales capacities, has resigned to join Theodore F. MacManus, Inc., of Detroit. He was a sports editor and cartoonist on the *Blade* here before going to the Willys-Overland Co.

Homs Gets South American Post

Pablo Hom's has been named special representative of Nordyke & Marmon Co., Indianapolis, in South America. Mr. Hom's was the organizer of the export department of the Cole Motor Car Co. and was export manager of that company before joining the Nordyke & Marmon forces.

Taylor Signs with Velie

G. W. Hadden, general sales manager of the Velie Motors Corp., Moline, Ill., has announced the appointment of A. M. Taylor as advertising manager. Mr. Taylor comes to the Velie organization from the Franklin Automobile Co., where he was engaged in a similar capacity.

Kivlan Joins Colt-Stewart

Frank J. Kivlan, formerly in the national advertising department of the New York Evening Journal, has accepted the advertising managership of Colt-Stewart Co., New York, distributor of Maxwell and Chrysler cars in the metropolitan district.

Price Elected Vice-President

Lee W. Price, purchasing agent of the Detroit plant of Continental Motors, was elected vice-president of the National Association of Purchasing Agents at the annual meeting of that body held recently in Milwaukee.

Machacek Given Territory

John J. Machacek, for four years in the service field with the Eiseman Magneto Corp., has been named district sales manager of the Lincoln Products Co. in a territory covering Michigan, Wisconsin and Illinois.

I. H. Smith Goes to South America

Ivan H. Smith of General Motors Acceptance Corp., export department, sails June 6 to enter the Buenos Aires office. Mr. Smith came to General Motors three years ago from Knauth, Nachod and Kuhne, international bankers. He is accompanied by Mrs. Smith on the trip.

Wilson Now Chief Engineer

Robert A. Wilson, for the past ten years associated with Bauch Machine Tool Co. in various engineering capacities, has been appointed chief engineer of the Hoefer Manufacturing Co., Freeport, Ill.

Emmert Joins Hudson Forces

A. P. Emmert, general superintendent of the Warner Gear Co., Muncie, Ind.,

has resigned his position with that company to take charge of the axle plant of the Hudson Motor Car Co., Detroit.

Col. Kasson with Cram's Service

Col. Rutgers S. Kasson has been named vice-president and general manager of Cram's Services. Col. Kasson at one time represented the Ford Motor Co. in Europe.

Sedley Going Abroad

P. G. Sedley, equipment sales manager for the Lincoln Products Co., Chicago, will sail for Europe on June 24 in the interest of his company's sales on the Continent.

Juhasz Europe Bound

John Juhasz, president of the Juhasz Carburetor Corp., New York, sailed for Europe June 2 for a ten-week business trip on the continent.

Ewing Sales Director

E. A. Ewing has been appointed sales manager of the Ochrome Valve Co., Shelton, Conn.

French Imports Show Gain in First Quarter

PARIS, May 27 (by mail)—French automobile imports show an increase of rather more than 50 per cent for the first three months of the present year, compared with the corresponding period of 1924. The figures for last year are 3421, while up to the end of March this year the number of imported cars was 6946, of which 6584 came from the United States. The returns covering Italy show 293 automobiles imported, but this is below the reality, for numbers of automobiles from this country are classed as temporary imports until the end of the year, when the figures are revised.

French automobile exports increased 11.1 per cent during the first quarter of 1925, compared with last year, the passenger car figures being 11,714 a year ago and 13,189 during the present year. Trucks and agricultural tractors showed a slight decrease, dropping from 1231 to 1203. Great Britain headed the list of French clients, with Spain second, Algeria third and Germany fourth.

RIO SHOW AUGUST 1

WASHINGTON, June 3—The first automobile show in Rio de Janeiro will be held between Aug. 1 and Aug. 15 under the auspices of the Automobile Club of Brazil. The exposition is to be held

in the Portuguese Pavilion in the Exposition Grounds and will be inaugurated with a flower battle on the Avenida das Nacoes for the purpose of stirring up interest on the part of the populace. It is assumed that all dealers now operating in Rio will show cars and other exhibits are expected, says the automotive division of the Department of Commerce here. The committee in charge of the show consists of the Minister of Transportation, Dr. Francisco Sa, and Dr. Candido Mendes, head of the Brazilian Roads Commission.

Guarantee Measure Co. Buys Marvel Concern

ROCHESTER, PA., June 3—The Guarantee Liquid Measure Co., manufacturer of the Fry Visible Pump, has purchased all the outstanding capital stock of the Marvel Equipment Co. of Cleveland, maker of lubricating and grease pumps.

The Marvel company will continue as a separate operating organization, with new officers as follows: W. S. Townsend, president; A. J. Townsend, vice-president and general manager; G. D. Wolf, vice-president; J. G. Williams, vice-president; J. T. Lewis, secretary and treasurer. The sales and operating personnel are unchanged. W. S. Townsend is also president of the Guarantee company.

Production and sales policies are not affected by the merger.

Automotive Demand for Steel Keeps Up

Prices Practically Unchanged—
Orders from Car Factories
Mainstay of Market

NEW YORK, June 2—Automotive demand continues to be the steel industry's principal source of nourishment as the first half of the year enters upon its last month.

The general expectation in the steel market is that June will not bring forth any marked changes in prices or conditions. Next Wednesday's announcement of the U. S. Steel Corporation's unfilled tonnage at the end of May is expected to reveal another moderate excess of shipments over bookings. This would be in line with the record of the last two years.

In the absence of any indications of sharply increasing demand from any consuming quarter, the relative steadiness of prices is accounted for by the greater equalization of output and demand, but steadiness of prices under such conditions, with from one-fourth to two-fifths of the mills' capacity idle and hungry for orders, means that whenever there appear any signs of really quickened demand there will first be the keenest competition for the business, followed by price bulges as order books fill up and the buying movement is sustained.

Changes Expected

Such a condition is not looked for in the immediate future, but there is a feeling abroad, largely traditional in character, that some sort of change in the situation will begin to set in the next month. There has been some talk recently of this or that order being turned down by mills when price concessions were demanded.

As a matter of fact, automotive consumers appear to be well satisfied with prices as they are at present. Here and there, an attractive sheet order may have carried \$1 or \$2 a ton concession from the generally quoted market price, but there has been a total lack of pressure by automotive consumers on the price structure as a whole, and, in fact, relatively little shopping. As indicated last week, sheet bar prices have receded to the \$35 level, making the position of non-integrated rollers of full-finished automobile sheets slightly more comfortable.

Pig Iron—Automotive foundries are replenishing their pig iron reserves consistent with their enlarged melt. Prevailing prices are attractive, but foundrymen do not anticipate so sudden a reaction in the market as to make it worth their while to deviate from their policy of avoiding commitments too far into the future.

Aluminum—The market remains pegged at the price level of 27c for 98-99 per cent pure virgin ingots, which,

if it holds out another two months, will celebrate its first anniversary. A few years ago it was nothing unusual for the high and low prices of the year to show a 5 or 6 cents spread. It would be premature, however, to characterize the market as stabilized, as some automotive consumers believe, when it is merely pegged.

Copper—Statistics show that automotive consumption of the red metal is becoming more and more of the dominant factor in the domestic market which continues steady.

Tin—American consumers show little interest in London's speculative manipulation of the market. The metal's statistical position is giving no uneasiness to consumers.

Lead—The market is irregular, premiums continuing for spot metal and the general paucity of the supply unrelieved.

Wehr Company Takes Added Plant Space

MILWAUKEE, June 1—The Wehr Co., 533-545 Thirtieth Street, manufacturer of tractor attachments, Fordson specialties, etc., has taken a long term lease of 50,000 square feet of manufacturing space in the former Milwaukee gas engine plant of the Avery Co., Peoria, Ill., and will begin work immediately on the equipment of the area for the production of a so-called one-man power grader, used with small tractors.

The former Avery plant, originally built by the Frank M. Davis Engine Co., was liquidated a short time ago. The equipment was sold piece-meal and the buildings acquired by several Milwaukee investors, who have changed the name to Manufacturers' Arcade and are leasing it out in parcels to various industries. As already reported, the Badger Mfg. Corp., 156 Clinton Street, Milwaukee, maker of automobile bumpers, has taken over 75,000 sq. ft. and will move within a few weeks to the new location. The Wehr Co., the second large lessee of space, is identified with the Wehr Steel Co., Milwaukee, a large manufacturer of electric steel castings. Henry W. Wehr is president, and Fred Wehr, secretary-treasurer of both concerns.

CHARTER HABERER & CO.

CINCINNATI, June 2 — Haberer & Co., manufacturers of commercial truck bodies, have been granted a State charter. The company, which has a large plant at Boston Street and the C. H. & D. Railroad, Cincinnati, is incorporated for \$150,000. Mrs. Sophia Haberer, widow of Jacob F. Haberer, Sr., who founded the business forty years ago, was the sole owner until her death last October. Under the corporation Mrs. Haberer's five sons will operate the business. They are Emil, Jacob F., Jr., Oscar, Albert and William. Prior to the inception of the automobile the company was one of the largest carriage manufacturers in the Middle West.

Rollin Prize Winner in West Economy Run

Captures Sweepstake—Oakland,
Gardner and Stearns-Knight
Also Successful

LOS ANGELES, June 3—Official scores released today by J. A. C. Waters, run manager of the ninth annual economy run to Camp Curry, Yosemite, which ended last Saturday, give the sweepstake honors to the Rollin, entered by Slaughters Motors, Inc., of Los Angeles, Southern California distributor. Driven by Joe Bozzani, the Rollin negotiated the 360 miles into the high Sierras on 13½ gallons of gasoline, 2 pints of oil and 2 pints of water, for a score of 45.35 ton miles to the gallon—nosing out the four other contestants in the four-cylinder class and besting the sixes and eights as well.

The Oakland sedan, entered by Reeve Gartzman, Inc., of Los Angeles, Southern California distributors, ran the Rollin a close second. The Oakland was driven by Harry Neville to honors in its particular price class and the special closed car championship, which it also won last year. The Roamer, driven by Harry Tarkington, placed third for sweepstakes. The drivers of all three placing cars are veterans of former economy runs.

The Gardner brougham, entered by Southwest Motors, Inc., Los Angeles, distributors, won over the Duesenberg in the eight-cylinder class. The Stearns-Knight sedan captured first laurels in the higher priced six-cylinder class from the McFarland and Pierce Arrow.

The Overland, which had been doped by many for the winner, following its victory last year, was disqualified at the Fresno control by Referee Val Harsnap on account of late arrival. A time limit of 10½ hours was allowed by the rules, and the Overland failed to show up until 6½ minutes late.

SLIGHT ACCIDENT INCREASE

WASHINGTON, June 4—A total of 1631 automobile fatalities in fifty-two cities with an aggregate population of 26,000,000 during the period Jan. 1 to May 31, 1924, is announced here by the such fatalities in the period Jan. 1 to May 31, 1924, is announced here by the Department of Commerce. Of these 1631 deaths, 357, or 22 per cent, were reported in the four-week period ending May 23, 1925. In all, the department has received 1925 automobile fatality reports from seventy cities of 100,000 population or more.

TAKE OVER SPRING MACHINES

WORCESTER, June 3—Sleeper & Hartley, Inc., have taken over the line of spring and wire coiling machines formerly manufactured by the Garvin Machine Co. of New York.

Announces Program for A. E. A. Meeting

Spring Session to Be Marked
by Cost Analysis by
Dr. Copeland

CHICAGO, June 3—Dr. Melvin T. Copeland, director of the Bureau of Business Research of Harvard University and one of the leading merchandising authorities in the country, has been secured to address the spring meeting of the Automotive Equipment Association on "The Cost of Doing Business." The meeting will be held at Colorado Springs, June 22-27.

In his address Doctor Copeland, who will be the only outside speaker, will make comparisons between the 1924 and 1925 reports and also between the automotive and other industries. Questions will also be answered on all subjects. At this session the first announcement relative to the operating expense survey will be made. Printed copies of the survey will be distributed at that time.

All meetings will take place in the theater of the Broadmoor Hotel, starting at 10 a. m. If necessary a session will be held Saturday, otherwise the meeting will be adjourned Friday, June 26. The program as completed to date follows:

June 22—Membership, Standardization, Lamp, Vigilance, Good Roads and Highways, Replacement Parts, Catalog, Labor, Motor Car Contact and State Vice Presidents.

June 23—Merchandising Foreign Trade and Railroad Classification.

The jobbers' division and the manufacturers' division are listed to meet on June 24.

Good roads chairman is L. S. Upson. Replacement parts chairman is M. McCormick.

Hupp Makes Changes in 4-Cylinder Sedan

DETROIT, June 4—New body lines, more interior room and a number of improvements to provide greater riding comfort have been made in the new edition of the Hupmobile club sedan mounted on the four-cylinder chassis, it was announced by the Hupp Motor Car Company. The price remains the same as the former model introduced in 1924, listing at \$1,375.

Increased comfort has been attained by lengthening the rear and front compartments, the former being three inches larger and the latter one inch larger, the additional four inches in the length of the body giving the car a better and larger appearance. Easier entrance has been obtained by increasing the width of all three doors by two inches, while a new style of upholstery and a later model of vision ventilation windshield fitted with an automatic wiper are special features of the new model.

Duco finish in either Hupmobile blue or beige is optional. According to factory officials 75 per cent of total production on the four-cylinder line is absorbed in producing the new club sedans, and it is expected that this figure will soon be surpassed when the latest models have reached the hands of all Hupmobile dealers.

CUTS MADE ON ESSEX COACH AND TOURING

DETROIT, June 2—The Hudson Motor Car Co. has just announced a cut in the prices of the Essex coach and touring cars. This price reduction is in line with the recent reductions made on the Hudson models a month ago, and stabilizes the line on the basis of the new production schedule made possible by increased factory capacity.

Both the Essex touring car and coach now list at \$850. The former price of the touring car was \$900, while the coach listed at \$895. The company reports orders far ahead of factory production.

Hear Firestone Plans Big Rubber Production

AKRON, June 3—In a statement attacking the British rubber restriction act, which he blames for the high cost of the raw material, Harvey S. Firestone, president of the Firestone Tire & Rubber Co., indicates that he is organizing a company to go into the rubber plantation business on a large scale.

While negotiations have not yet been completed, it is learned from reliable sources that the company will soon announce the purchase of nearly a million acres of land in Liberia, which will be developed as rubber plantations.

Two thousand acres of the property are said to be already under production. Much of the other represents rubber plantations which were formerly under cultivation by British interests. Cultivation was abandoned some years ago due to the depression in the rubber industry, and the plantations were allowed to go back to wilderness.

FORDS FOR AUSTRALIA

FORD CITY, ONT., June 1—First export shipments from the new half-million dollar dock of the Ford Motor Co. of Canada, Ltd., at its plant here are now en route for Montreal, where they will be transshipped to the Australian bound Canadian transport Canadian Explorer. The shipment includes 1149 Ford cars, trucks and tractors knock-down, and is the first large cargo to be shipped by all-water route. It will also be the first shipment to enter the new assembly plants in Australia.

FINANCIAL NOTES

Paige-Detroit Motor Car Co.—Directors of this company have declared a stock dividend of 10 per cent on the common stock, payable July 15 to holders of record June 30, 1925. On April 1, 1925, a stock dividend of 2½ per cent was paid on the common stock. The directors also declared the regular quarterly cash dividend of 3 per cent on the common stock, payable July 1 to holders of record June 20, 1925. For the first four months of 1925 the company reports earnings after depreciation, but before taxes as \$1,360,111. President H. M. Jewett says that the company has \$2,515,000 cash with no current liabilities except current bills.

Stromberg Carburetor Co. of America, Inc., for the quarter ended March 31, 1925, reports net income \$160,305, against \$204,305 for the corresponding period last year, equal respectively to \$2 and \$2.72 per share on 80,000 shares outstanding in 1925 and 75,000 in 1924. Balance sheet as of March 31 shows current assets of \$1,941,017 and current liabilities \$283,657, leaving net working capital of \$1,657,360, against \$1,663,076 as of March 31, 1924.

C. M. Hall Lamp Co. declared a dividend of 50c. a share, payable June 16 to holders of record June 9, and a dividend of 50c. a share, payable 25c. a share on Sept. 15 to holders of record Sept. 10, and 25c. a share on Dec. 15 to holders of record Dec. 10, 1925. On April 30, 1925, a dividend of 25c. a share was paid.

Timken Detroit Axle Co. declares as a result of the sale of the Waterloo Avenue factory to the Briggs Mfg. Co., the majority of the bonds issued on this plant would be immediately called and the premium paid thereon as provided in the indenture. The company reports business as increasing.

Eaton Axle & Spring Co. resumed dividend payments on common stock recently by declaring 50c. a share, payable Aug. 1 to stockholders of record of July 15. This is the first dividend since July, 1924, when 40c. a share was paid.

Motor Wheel Corp. has declared a quarterly dividend of 40c. a share on the common stock, payable June 20 to stockholders of record June 10. Previous quarterly disbursements were 30c. a share.

Checker Cab Mfg. Corp. as of Feb. 28, 1925, reports current assets \$1,174,671 and current liabilities \$652,317, leaving net working capital \$522,354, against \$473,279 as of Dec. 31, 1923.

MILWAUKEE S. A. E. MEETS

MILWAUKEE, June 1—Harry L. Horning, president Waukesha Motor Co. and head of the S. A. E.; Alexander G. Herreshoff of the Rushmore Laboratories, Plainfield, N. J., and F. M. Young, vice-president of the Racine Radiator Co., were speakers at the May session of the Milwaukee Section, S. A. E. Mr. Young was elected delegate to the summer meeting at White Sulphur Springs, W. Va., June 16-19. He recently was elected treasurer of the Milwaukee Section. J. B. Armitage is chairman.

Coming Events

SHOWS

- Sept. 14-19—Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating, W. H. Eisenman, secretary.
- Sept. 21-26—London, England, Annual Cycle and Motorcycle Show under auspices of the British Cycle and Motorcycle Manufacturers and Traders Union, Ltd.
- Sept. 28-Oct. 3—Chicago, Fourteenth annual Safety Congress and Exhibit, Rainbow Room, Hotel Winton, under direction of National Safety Council, A. M. Smith, business manager.
- Oct. 5-9—Atlantic City, Young's Million Dollar Pier, Manufacturers' Exhibition in connection with American Electric Railway Association Convention.

Oct. 8-17—London, Olympia passenger car show.

Oct. 29-Nov. 7—London, annual truck show.

Nov. 26-Dec. 6—Berlin, Germany, Annual Automobile Show in the Kaiserdamm.

CONVENTIONS

June 16-19—White Sulphur Springs, Greenbrier Hotel, Summer meeting of Society of Automotive Engineers.

June 22-27—Summer Convention of the Automotive Equipment Association at the Broadmoor Hotel, Colorado Springs, Colo.

June 24-26—Seattle, National Foreign Trade Council Convention.

Sept. 14-19—Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating.

Oct. 5-9—Atlantic City, Young's Million Dollar Pier, American Electric Railway Association.

Oct. 7-10—Montreal, Motor and Accessory Manufacturers Association Convention.

RACES

June 13—Altoona, Pa.

June 20—Baltimore-Washington Speedway, Laurel, Md.

July 26—Paris, Montlhéry Track, French Grand Prix.

Sept. 7—Altoona, Pa.

Sept. 30—Fresno, Cal.

Oct. 10—Baltimore-Washington Speedway, Laurel, Md.

Oct. 24—Charlotte, N. C.

Nov. 26—Los Angeles.

S.A.E. MEETINGS National

June 15-19—Summer meeting of the Society of Automotive Engineers at White Sulphur Springs, W. Va.

Sept. 15-16—Production meeting and exhibition.

Sept.—Automotive Transportation meeting.

Nov.—Service Engineering meeting.

Automotive Markets Spotty, Reports Show

(Continued from page 994)

New car conditions are best in the eastern part of the country, with the exception of parts of New England. Philadelphia, Atlanta, Cincinnati and Toledo all report good business. In New York, although sales are regarded as satisfactory for this period of the year, they are somewhat below the levels of the previous months. Boston reports that "dealers, with a few exceptions, have now found that there was a slowing up of sales covering the last two weeks of May. It was not an actual shutdown, but a gradual dropping off. They are inclined to credit the situation to rumors regarding new cars and changed prices. This slowing up has affected cars of all the price classes, and it developed a little sooner than expected."

Rural Sales Slow

The tendency to increases in the Atlanta territory is counteracted by the news from Louisville that May showed a slight decrease in new car sales. This, however, is regarded as no more than the seasonal tendency. New Orleans reports urban business as good, but rural districts are below normal because of the uncertainty of the rice crop outlook. In the Birmingham district sales are satisfactory, but in Texas, despite good crop conditions, a marked slump seems to have set in.

Throughout the Middle West varying conditions are found. Chicago reports:

Uncertainty rules the automotive industry in the city and the surrounding territory. The slackening demand which has been reported in various parts of the country has struck certain dealers and distributors with a result in the falling off of sales. A pronounced slump will not occur, in the opinion of most dealers, but the buying will again swing back into better channels with the help of continued good weather.

URGES CAR EXHAUSTS BE PLACED ON TOP

PHILADELPHIA, June 2—That exhausts should be on top of cars, instead of at the bottom, was the assertion of Dr. John E. Mackenty of New York, who attended the thirty-first annual convention of the American Laryngological, Rhinological and Otological Society just closed in Atlantic City. Dr. Mackenty says that having the exhaust above the cars would, in large measure, prevent the deleterious effects of carbon monoxide on the throats of the public.

In the country districts, the conditions are spotty, and here it is found that only certain dealers are complaining. Those cars which have a pronounced tendency for yearly models are being hit the hardest with the others enjoying a "reasonable business."

An easing up in demand is reflected in the report from Kansas City that deliveries are being speeded up in lines wherein shortages have obtained. Indianapolis reports that sales in May were about on a par with April. Milwaukee finds "evidence that the recent lull in industry and business has had an adverse effect upon the retail sales of passenger cars," although it appears likely that returns for the whole month of May will show a larger total than April. The record, however, is considerably below that of last year.

Proceed with Caution

Des Moines reports that:

Since the middle of May there has been a slight slackening in demand reported by both city and rural dealers. Although many dealers and distributors are still behind on deliveries, the market trend has been noticeable in practically every line. Both dealers and distributors are proceeding with caution. It is probable that the decrease in demand is partially due to the

agricultural outlook, as weather conditions this spring have been very unfavorable to crop growth.

From Minneapolis comes the word that after a period of sales passing all former records in the Northwest, dealers are now looking forward to something of a lull. Salt Lake City finds that the automobile business in that territory is about normal for the season.

The worst conditions are found on the Pacific Coast, unfavorable reports coming from San Francisco, Los Angeles and Sacramento, with Seattle on the other hand reporting a pick-up in practically all automotive lines during the closing days of May. The situation in the southern and central parts of the Pacific Coast is credited to unfavorable weather, with unseasonable rains damaging crops and keeping the temperature unusually cool.

Credit Conditions Steady

Nothing unusual in the way of credit conditions is noted, but apparently the tendency in some sections of the country to let down the bars in the time sales field has been causing some disturbance. Salt Lake City reports that "Not all but most of the firms seem to be taking kindly to the extension of the time-payments limit from 12 to 18 months. One big distributor-dealer said he would not go beyond the original limit."

There are no gains in repossessions of new cars noted, but in a few sections, returns of used cars have increased enough to cause some concern.

BLEKRE TIRE FAILS

ST. PAUL, June 3—The Blekre Tire & Rubber Co. of Minnesota, Inc., Vandalia and Wabash Avenues, has gone into the hands of receivers appointed by the District Court. E. O. Blekre of Minneapolis, founder of the company and former president, with former Judge Oscar Hallam are the receivers. Current liabilities were reported to Judge John W. Boerner at \$80,000, bonded indebtedness at \$500,000 and outstanding capital stock \$100,000.